EPA Region 4

CAA and RCRA Overlap Provisions in Subparts AA, BB, and CC of 40 CFR Parts 264 and 265

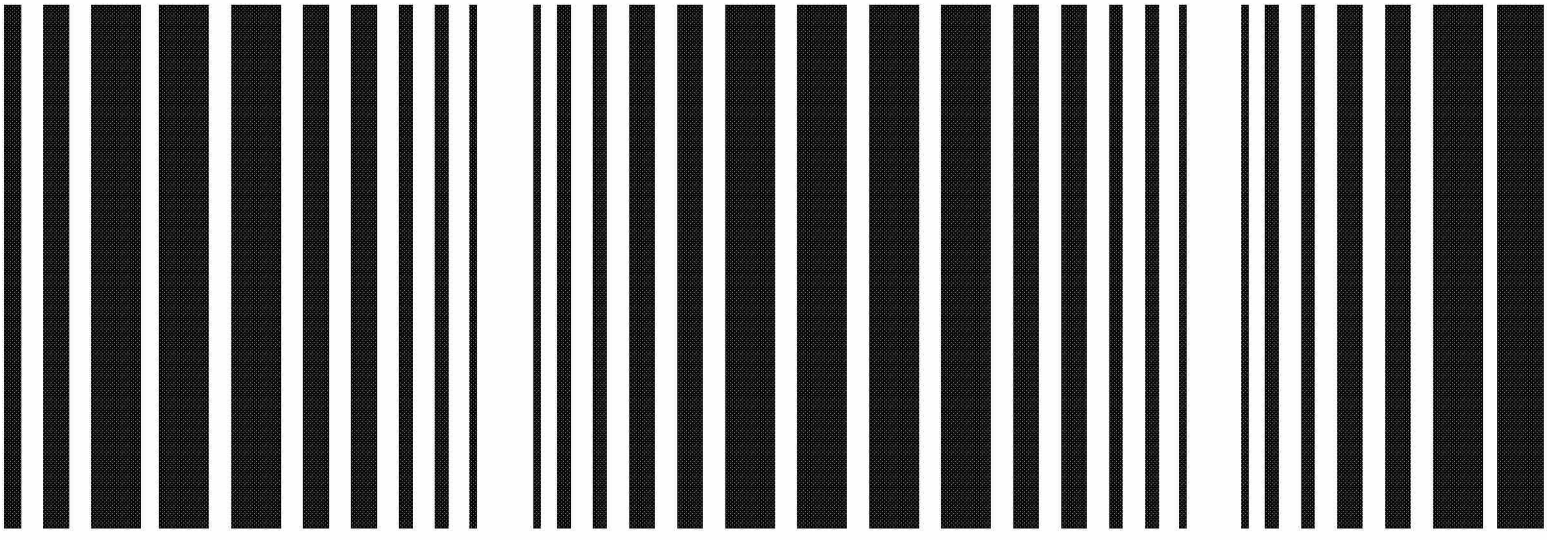

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Table of Contents

ED_002469_00000409-00005

Tables

ED_002469_00000409-00006

Introduction

The EPA fully recognizes that, in developing air standards to meet congressional directives established by provisions in the Clean Air Act (CAA) and Resource Conservation and Recovery Act (RCRA), the potential exists for regulatory overlap and that EPA's intention is to minimize, if not eliminate, regulatory overlap to the extent allowed under the different legislative acts. Section 1006(b) of RCRA indeed requires that the air standards be consistent with and not duplicative of CAA standards. Similarly, the Clean Air Act voices a strong preference for consistency of CAA section 112 standards and RCRA standards where practicable (see section 112(n)(7)).

The EPA decided that the best way to eliminate any regulatory overlap between the RCRA Air Rules and the various CAA national emission standards was to amend the RCRA Subpart AA, BB, and CC rules to exempt waste management units, process vents, and equipment components (otherwise subject to the standards) that are using air emission controls in accordance with the requirements of applicable Clean Air Act new source performance standard (NSPS) or national emission standard for hazardous air pollutants (NESHAP) regulations. Therefore, the RCRA Air Rules in Subparts AA, BB, and CC of part 264 and part 265 were amended to exempt any hazardous waste management unit that the owner or operator certifies is equipped with and operating air emission controls in accordance with an applicable Clean Air Act regulation codified under 40 CFR Part 60, Part 61, or Part 63. It is important to note that these exemptions only apply to those units, process vents, or equipment using organic air emission controls to comply with an applicable CAA regulation. The EPA has determined that this is the best way to assure that air emissions from hazardous waste management units are controlled to the extent necessary to protect human health and the environment.

Providing this exemption eliminates the possibility of duplicative or conflicting requirements for those hazardous waste treatment, storage, and disposal facility (TSDF) tanks, surface impoundments, containers, process vents, and equipment using organic emission controls in compliance with a NSPS or NESHAP under the CAA but also subject to requirements under the RCRA standards. The Agency considered it unnecessary for owners and operators of those waste management units subject to air standards under both sets of rules to perform duplicative testing and monitoring, keep duplicative sets of records, or perform other duplicative actions. Despite various restrictions and conditions that are

ED_002469_00000409-00007

included in the individual RCRA Air Rule subparts, the EPA considers this approach to provide the facility owner or operator with a broader degree of compliance flexibility, and a less extensive monitoring, recordkeeping, and reporting burden under RCRA.

The purpose of this document is to provide the RCRA permit writer and inspector with guidance on the appropriate application of the RCRA Air Rules overlap exemption for facilities also subject to NSPS and NESHAP and on how to confirm that the facility is meeting all requirements under the CAA rules for the units, process vents, and equipment seeking exemptions under the overlap provisions of the RCRA Air Rules.

Section 1.0 of this document addresses the RCRA Air Rules' CAA/RCRA overlap provisions. A separate subsection is provided for each of the RCRA Air Rule subparts, i.e., Subpart AA, Subpart BB, and Subpart CC. Each subsection within Section 1.0 is divided into

- a discussion of the subpart's specific applicability and exemption provisions with a discussion of the background of the exemption and any conditions placed on the use of the exemption presented; and
- a discussion of the technical requirements relative to the air emission controls required by the RCRA Air Rules and the CAA NSPS and NESHAP that may apply to the facility.

Section 2.0 of the document addresses the documentation required by the RCRA Air Rule exemption provisions. A subsection is included for each of the RCRA Air Rule subparts that notes the documentation required specifically by the relevant subpart. Section 3.0 is a summary of the CAA regulations that potentially might overlap with the RCRA Air Rules. Section 4.0 discusses CAA enforceability and operating permit considerations related to confirming that applicable CAA requirements are met for the RCRA units, process vents, or equipment that are seeking exemptions under the overlap provisions of the RCRA Air Rules.

ED_002469_00000409-00008

1.0 RCRA Air Rules' CAA/RCRA Overlap Provisions

1.1 Subpart AA–Air Emission Standards for Process Vents-CAA/RCRA Overlap Provisions

1.1.1 Applicability and Exemptions

In the December 8, 1997, revisions to the Subpart AA rules (62 FR 64635-64671), the EPA amended §264.1030 and §265.1030 (Applicability) to exempt from the requirements of Subpart AA any "process vents at a facility where the facility owner or operator certifies that all of the process vents that would otherwise be subject to this subpart are equipped with and operating air emission controls in accordance with the process vent requirements of an applicable Clean Air Act (CAA) regulation codified under 40 CFR Part 60, Part 61, or Part 63."

The EPA amended the applicability provision of Subpart AA by adding a new §264.1030(e) and §265.1030(d). This provision states that a process vent is not subject to the Subpart AA standards provided the owner or operator certifies that all Subpart AA-regulated process vents at the facility are equipped with and operating air emission controls in accordance with the requirements of an applicable Clean Air Act regulation codified in Part 60, 61, or 63. This provision is quite similar to but not exactly the same as the one adopted by EPA for units subject to Subpart CC as part of the November 1996 amendments (see §264.1080(d) and §265.1080(d) of Subpart CC) and the logic for applying the exemption in much the same manner to Subpart AA process vents is identical to the rationale used by EPA for the Subpart CC revisions.

The Subpart AA process vent applicability exemption is, however, implemented slightly differently from the parallel exemption for Subpart CC units. Both compliance approaches allowed under the existing Subpart AA rules require emission control or emission limits on a facility-wide basis. See the provisions at 40 CFR 264.1032(a)(1) and (a)(2). Thus, to be equally protective of human health and the environment, the EPA considered it necessary that any alternative compliance demonstration require control of all

ED_002469_00000409-00009

of the process vents at the facility that would have otherwise been regulated under Subpart AA. Therefore, the Subpart AA process vent applicability exemption is only available at a facility where each and every process vent that would otherwise be subject to Subpart AA is equipped with and operating air emission controls in compliance with an applicable CAA standard under Part 60, 61, or 63. The various individual vents could be regulated under different CAA rules as long as all vents (otherwise subject to Subpart AA) are controlled under an applicable CAA rule.

As with the similar exemption provisions in Subparts BB and CC, to comply with the requirements at paragraphs §264.1030(e) or§265.1030(d) and thus qualify for the applicability exemption, the emissions from each Subpart AA process vent must be routed through a closed-vent system to an air emission control device. A process vent that is in compliance with a CAA standard under an exemption from control requirements (i.e., is not equipped with and operating a control device) does not meet the criteria established in the provisions paragraph §264.1030(e) or §265.1030(d) of Subpart AA. Therefore, a unit that does not use the required air emission controls but is in compliance with a NESHAP through an "emission averaging" or "bubbling" provision does not qualify for the exemption. Similarly, if the Clean Air Act standard for the particular unit is no control (for example, because the Maximum Achievable Control Technology (MACT) floor for the source category is no control and the Agency decided not to apply controls more stringent than the floor), the exemption from the RCRA standards under §264.1030(e) or §265.1030(d) of Subpart AA would not apply since the unit would not actually be controlled (i.e., equipped and operating air emission controls) under provisions of the MACT standard.

To take the above example a step further, at a facility where all but one of the Subpart AA process vents are equipped with air emission controls for compliance under CAA rules and the one uncontrolled Subpart AA process vent is also in compliance with a CAA regulation but is not controlled for air emissions, the facility's Subpart AA process vents do not meet the applicability exemption criteria as stated in Subpart AA and thus are not exempt from the rule under §264.1030(e) or §265.1030(d). Despite this restriction, the EPA considers this alternative to provide the facility owner or operator with a broader degree of compliance flexibility, and less extensive monitoring, recordkeeping, and reporting requirements under RCRA.

1.1.2 Technical Requirements

The regulatory language used in the applicability exclusion under §264.1030(e) and §265.1030(d) does not condition the use of the Subpart AA RCRA/CAA overlap exemption on the relative stringency of the CAA rule under which the process vents are required to

ED_002469_00000409-00010

install and operate air emission controls. No mention is made of relative stringency in the rule language. Therefore, the Subpart AA applicability exclusion in paragraphs (e) and (d) does not require that the CAA air emission controls be equivalent or more stringent than the control device requirements under Subpart AA for the affected waste management unit process vent. Language regarding the relative stringency of the various rules under which a process vent on a waste management unit could be required to install air emission controls was not considered necessary or meaningful relative to control of waste management unit process vents; this is because the technical control requirements prescribed in the various rules for these waste management unit process vents are for all practical purposes the same. Therefore, implementation of vent controls, regardless of what particular rule the controls are required under, results in approximately the same overall level of control device performance for the vent stream.

A review of the regulations affecting waste management unit process vents shows that the technical control requirements for process vents are relatively consistent with regard to control device performance. For the most part, both the RCRA and CAA rules for process vents require use (i.e., installation and operation) of a control device on the vent unless certain source category or rule specific criteria are met. For example, if the waste has an organic constituent concentration below a specified level or the vent flow and concentration are below stated diminimus values controls are not required. For the Subpart AA process vent rules in parts 264 and 265, the rules apply to specific unit operations that are managing hazardous wastes with organic concentrations of at least 10 ppmw. For the off-site waste and recovery operations NESHAP in part 63, the applicability criteria include a 500 ppmw Volatile Organic Hazardous Air Pollutant (VOHAP) concentration in the off-site material managed in the unit on which the process vent is located. The off-site waste and recovery NESHAP also has process vent flow and concentration criteria of 6 m^3/min and 20 ppmv for the vent stream. Part 63 in the HON also has flow rate and concentration criteria (0.005 scm/min and 50 ppmv total organic HAP concentration) that are used to categorize process vents for application of control devices. The rules, in general, require that the control device meet certain design, operational, and performance criteria and it is these control device technical requirements that are similar throughout the RCRA and CAA process vent rules. These performance or technical requirements are briefly summarized in Table 1.2.1-1.

ED_002469_00000409-00011

1.2 Subpart BB–Air Emission Standards for Equipment Leaks-CAA/RCRA Overlap Provisions

1.2.1 Applicability and Exemptions

Compliance with EPA equipment leak standards is typically assessed through review of records that document implementation of the technical requirements of the rule. As originally promulgated (55 FR 25506, June 21, 1990), the Subpart BB recordkeeping and reporting requirements at §264.1064(m) and §265.1064(m) provided that "the owner or operator of any facility that is subject to this subpart (i.e., Subpart BB) and to regulations at 40 CFR Part 60, Subpart VV, or 40 CFR Part 61, Subpart V, may elect to determine compliance with this subpart (i.e., Subpart BB) by documentation either pursuant to §264.1064 of this subpart, or pursuant to those provisions of 40 CFR Part 60 or 61, to the

Table 1.2.1-1. Summary of RCRA and CAA Technical Control Requirements for Process Vent Control Devices

Control Device Technical Requirements	
Control Device Type	Technical Control Requirement
Enclosed combustion devises (e.g., thermal incinerator, catalytic incinerator, boiler, or process heater)	• 95 % destruction efficiency • 20 ppmv exit concentration • minimum residence and temperature, (e.g., 760 °C and 0.5 sec)
Recovery devices (e.g., carbon adsorber or condenser)	• 95 % overall recovery
Flares	• design and operational criteria (e.g., no visible emissions)

extent that the documentation under the regulation at 40 CFR Part 60 or 61 duplicates the documentation required under this subpart (i.e., Subpart BB)." The purpose of this paragraph in Subpart BB was to add a provision in the rule to provide for elimination of recordkeeping requirements that are duplicative of other Federal requirements for equipment leaks.

The amendments to the Subpart BB rules, published on December 8, 1997 (62 FR

ED_002469_00000409-00012

64636-64671), revised the recordkeeping provisions of Subpart BB to eliminate owner or operator burden caused by regulatory overlap of the various EPA equipment leak regulations under the Clean Air Act and RCRA. The Subpart BB recordkeeping provisions in Section 264.1064(m) and Sec. 265.1064(m) were amended to allow any equipment that contains or contacts hazardous waste that is subject to Subpart BB and also subject to regulations in 40 CFR Part 60, 61, or 63 to determine compliance with Subpart BB by documentation of compliance with the relevant provisions of the Clean Air Act rules codified under 40 CFR Part 60, Part 61, or Part 63. As noted in the preamble to these amendments, "because compliance with Subpart BB is demonstrated through recordkeeping, this recordkeeping revision has the effect of exempting equipment that would otherwise be subject to Subpart BB from Subpart BB requirements, provided the equipment is operated, monitored, and repaired in accordance with an applicable CAA standard, and appropriate records are kept to that effect."

Paragraph §264.1064 (m) in the recordkeeping requirements states that the owner or operator "...may elect to determine compliance with this subpart either by documentation pursuant to §264.1064 of this subpart [i.e., Subpart BB], or by documentation of compliance with the regulations at 40 CFR Part 60, Part 61, or Part 63 pursuant to the relevant provisions of the regulations at 40 CFR Part 60, Part 61, or Part 63." The corresponding Part 265 language is the same. The objective of the amendment was to eliminate any owner or operator burden caused by regulatory overlap. In making the revision to paragraph (m) in §264.1064 and §265.1064 of Subpart BB, the Agency intended that, for a piece of equipment subject to equipment leak regulations under the CAA as well as RCRA Subpart BB, compliance with the CAA rules rather than the RCRA Subpart BB requirements would be an adequate demonstration of compliance and in effect eliminate the need to demonstrate compliance under Subpart BB of the RCRA Air Rules. The provisions in 40 CFR 264.1064(m) and 265.1064(m) are intended to allow a facility owner or operator to demonstrate compliance with all of subpart BB, through documentation of compliance with regulations under one of the specified parts of the CAA. Simply put, if a facility has equipment that is subject to relevant provisions (i.e., provisions for operating, monitoring, and repairing subpart BB equipment) under regulations within the specified CAA parts, that equipment is exempt from 40 CFR part 264 subpart BB. To be eligible for the exemption provided by 40 CFR 264.1064(m) or 265.1064(m): the relevant CAA requirements must be applicable to the subpart BB equipment; the relevant CAA requirements must include provisions for operation, monitoring, and repair of the Subpart BB equipment; the relevant

ED_002469_00000409-00013

CAA requirements must be codified within 40 CFR part 60, 61, or 63; and compliance with the relevant CAA requirements must be documented in the facility operating record.

1.2.2 Technical Requirements

The regulatory language used in the revised paragraph (m) of Subpart BB does not condition the use of the CAA documentation of compliance in place of Subpart BB compliance on the relative stringency of the rule being used to document compliance. No mention is made of relative stringency in the rule language. That is, Subpart BB paragraph (m) does not require that the alternative CAA equipment leak rule be equivalent to or more stringent than the control requirements of Subpart BB. This type of rule language was not considered necessary or meaningful in relation to the Agency's equipment leak standards because differences in the various CAA and RCRA equipment leak rules in terms of technical requirements and overall control performance are marginal.

The EPA has promulgated a number of equipment leak regulations in 40 CFR Part 60, Part 61, and Part 63; although these rules may vary somewhat in format and administrative requirements, they contain nearly the same technical requirements (in terms of performance, work practice, and equipment requirements) and achieve approximately the same level of emissions control for the majority of equipment component types. For pumps and valves, there are differences in estimated control efficiencies that result from the use of different leak definitions and monitoring frequencies and, as a result, compliance with one of these equipment leak rules over another does result in slightly different emission reductions. However, the incremental emission reductions are small. The technical requirements covering other equipment components (e.g., sampling connections and open-ended lines) are the same in all the rules.

With regard to the control efficiencies for equipment leak control techniques, there are two primary techniques for reducing equipment leak emissions that form the basis of existing EPA regulations: 1) modifying or replacing existing equipment, and 2) implementing a leak detection and repair (LDAR) program. Table 1.2.2-1 presents a summary of equipment modifications that can be used for each equipment type with an approximate control efficiency for each modification. The equipment requirements (e.g., installing caps on open-ended lines or installing closed-loop sampling systems) are essentially the same in all of the Agency's equipment leak rules; therefore there are no real differences in rule stringency for these equipment types.

The LDAR program is a structured program to detect and repair equipment that is identified as leaking (i.e., emitting sufficient amounts of regulated material to warrant reduction of the emissions through repair); a portable monitoring device is used to identify

ED_002469_00000409-00014

equipment leaks from individual pieces of equipment. LDAR programs are best suited to valves and pumps. The control effectiveness of any given LDAR program is dependent on a number of factors including leak definition and monitoring frequency as well as initial and final leak frequencies. The existing EPA equipment leak rules vary in a number of ways that relate to these program factors. Some formats specify the leak definition (e.g., 10,000 ppmv) and monitoring frequency (e.g., monthly or quarterly) and others specify the final leak frequency. The EPA has estimated the differences in control effectiveness at Synthetic Organic Chemical Manufacturing Industry (SOCMI) process units for typical LDAR programs that are in the 40 CFR Part 60, Part 61, and Part 63 equipment leak rules. These include: 1) monthly LDAR with a leak definition of 10,000 ppmv, similar to the requirements of Subpart BB of Parts 264 and 265, Subpart VV and Subpart GGG of part 60, and Subpart VV and Subpart J in Part 61; 2) LDAR equivalent to that specified in the hazardous organic NESHAP (or HON) in Subpart H of Part 63 that has a lower leak definition for pumps and valves (e.g., 500 ppmv for Phase II and III) and specifies the monitoring frequency based on the leak frequency. Table 1.2.2-2 summarizes the estimated control effectiveness for the two LDAR programs at SOCMI process units, which also were those used in the original Subpart BB analysis to characterize waste management unit equipment leak emissions. As the estimates in Tables 1.2.2-1 and 1.2.2-2 show, the differences in emission reductions achieved by the various equipment leak rules are minimal.

The fact that EPA intended to keep all the various equipment leak rules consistent (if not equivalent) is shown by the preamble language that describes the changes made to the Subpart BB rules in the November 25, 1996, Federal Register notice (61 FR 59937). In these changes, the EPA incorporated into the Subpart BB standards recent changes that were made to other national equipment standards that require equipment leak detection and repair programs. Revisions to the RCRA standards for equipment leaks consist of incorporating changes to the requirements so that the Subpart BB requirements in Parts 264 and 265 are consistent and up-to-date with the general decisions the EPA has made regarding leak detection and repair program requirements for organic air emission control in other regulations under the Clean Air Act (e.g., National Emission Standards for Hazardous Air Pollutants (NESHAP): Off-Site Waste and Recovery Operations, 61 FR 34140, July 1, 1996, or the National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks, 40 CFR Part 63, Subpart H, 59 FR 19402, April 22, 1994, i.e., the HON).

ED_002469_00000409-00015

Table 1.2.2-1. Summary of Equipment Modifications

Equipment type	Modification	Approximate control efficiency (%)
Pumps	Sealless design	100 [a]
	Closed-vent system	90 [b]
	Dual mechanical seal with barrier fluid maintained at a higher pressure than the pumped fluid	100
Compressors	Closed-vent system	90 [b]
	Dual mechanical seal with barrier fluid maintained at a higher pressure than the compressed gas	100
Pressure relief devices	Closed-vent system	[c]
	Rupture disk assembly	100
Valves	Sealless design	100[a]
Connectors	Weld together	100
Open-ended lines	Blind, cap, plug, or second valve	100
Sampling connections	Closed-loop sampling	100

[a] Sealless equipment can be a large source of emissions in the event of equipment failure.

[b] Actual efficiency of a closed-vent system depends on percentage of vapors collected and efficiency of control device to which the vapors are routed.

[c] Control efficiency of closed vent-systems installed on a pressure relief device may be lower than other closed-vent systems, because they must be designed to handle both potentially large and small volumes of vapor.

ED_002469_00000409-00016

Table 1.2.2-2. Control Effectiveness for a LDAR Program at a SOCMI Process Unit

Equipment type and service	Control effectiveness (%)	
	Monthly monitoring[a] 10,000 ppmv leak definition	HON [b]
Valves - gas	87	92
Valves - light liquid	84	88
Pumps - light liquid	69	75

[a] This format serves as the basis for the 40 CFR Part 60 and Part 61 CAA equipment leak regulations as well as the RCRA Subpart BB rules.

[b] Control effectiveness attributable to the requirements of the hazardous organic NESHAP equipment leak negotiated regulation, 63 CFR Subpart H, are estimated based on equipment-specific leak definitions and performance levels specified in Subpart H.

ED_002469_00000409-00017

1.3 Subpart CC–Air Emission Standards for Tanks, Surface Impoundments, and Containers–CAA/RCRA Overlap Provisions

1.3.1 Applicability and Exemptions

In the November 25, 1996, revisions to the Subpart CC rules (61 FR 59932 - 59997), the EPA amended paragraph (b)(7) of §264.1080 and §265.1080 (Applicability) to exempt from the requirements of Subpart CC any "hazardous waste management unit that the owner or operator certifies is equipped with and operating air emission controls in accordance with an applicable Clean Air Act (CAA) regulation codified under 40 CFR Part 60, Part 61, or Part 63."

There are three limitations to this applicability exemption that are explained in the preamble to the Subpart CC revisions. First, for a tank that uses an enclosure as a part of the air emission control system rather than the more conventional tank controls involving covers, the enclosure and control device used must comply with the technical requirements for enclosures and combustion devices in §264.1084(i). If this is the case then the unit is exempt from further requirements under the rule. This enclosure/control device limitation does not hold if the tank is located inside an enclosure vented to a control device that is designed and operated in accordance with all the applicable requirements specified under 40 CFR Part 61, Subpart FF—National Emission Standards for Benzene Waste Operations, as is noted directly in paragraph (b)(7) of §264.1080 and §265.1080. These benzene waste tanks are exempt from Subpart CC as long as they meet the Part 61 Subpart FF requirements applicable to the unit.

Second, a unit that does not use the required air emission controls but is in compliance with a NESHAP through an "emission averaging" or "bubbling" provision does not qualify for the exemption; EPA lacks assurance that emissions from the unit are controlled to the extent necessary to protect human health and the environment. An explanation for this limitation was provided in footnote 2 of the preamble at 61 FR 59939, November 25, 1996.

ED_002469_00000409-00018

Third, if the Clean Air Act standard for the particular unit requires no control, the exemption from the RCRA standards under §264.1080(b)(7) would not apply since the unit would not actually be equipped and operating air emission controls under provisions of the MACT standard. Again, as stated above, the EPA believes the best way to assure protectiveness under the Subpart CC national rule is to require controls on each particular unit. It is therefore clearly EPA's intent that for a hazardous waste management unit to take advantage of this Subpart CC applicability exemption, the particular unit must be equipped with and operating air emission controls under an applicable CAA regulation.

The EPA further explained in the November 1996 preamble their logic and rationale for including this particular exclusion in the Subpart CC rules. In short, the Agency found that where there are MACT air emission control requirements for a specific unit otherwise covered by Subpart CC, the MACT typically requires the same technical air emission controls as would be required under Subpart CC. Thus, it follows that compliance with the MACT requirements (such that the unit is equipped with and operating air emission controls) would thus afford equal protectiveness as would be achieved under Subpart CC, and therefore can be considered to satisfy the RCRA protectiveness requirements.

1.3.2 Technical Requirements

The technical requirements for the RCRA Air Rules in Subpart CC as amended are essentially the same as those published by the EPA under the CAA section 112 MACT program. A unit controlled under one or the other set of requirements would achieve the same emission reduction and performance level; and the various requirements thus provide the same level of protection. For example, EPA, in promulgating the final requirements for the Off-Site Waste and Recovery Operations NESHAP (61 FR 34147, July 1, 1996), added a series of new subparts to 40 CFR Part 63; these subparts do not apply directly to any particular source category but are referenced by other rules to provide up-to-date consistent technical control requirements (i.e., *standard-standards*). These subparts include Subpart OO--National Emission Standards for Tanks—Level 1, Subpart PP--National Emission Standards for Containers, Subpart QQ--National Emission Standards for Surface Impoundments, Subpart RR--National Emission Standards for Individual Drain Systems, and Subpart VV--National Emission Standards for Oil-Water Separators and Organic-Water

ED_002469_00000409-00019

Separators. Additional *standard-standards* were promulgated by the Agency on June 29, 1999 (64 FR 34853-34949) and included Subpart SS--National Emission Standards for Closed Vent Systems, Control Devices, Recovery Devices, and Routing to a Fuel Gas System or a Process; Subpart TT--National Emission Standards for Equipment Leaks—Control Level 1; Subpart UU--National Emission Standards for Equipment Leaks—Control Level 2; and Subpart WW--National Emission Standards for Storage Vessels (Tanks)—Level 2. In terms of technical control requirements, these CAA standards are essentially identical to the requirements for tanks, containers, and impoundments found in the RCRA Subpart CC rule. Table 1.3.2-1 presents a summary comparison of the technical control requirements for the RCRA Air Rules in Subpart CC and the CAA *Standard-Standards* in 40 CFR part 63.

The differences in the individual rules lies in the fact that each rule has its own criteria to establish which units subject to the rule would be required to install and operate air emission controls. These criteria include such factors as volatile organic HAP concentration, vapor pressure, and tank or container size. Thus, a particular waste managed in a particular tank may require use of air emission controls under one CAA rule but not under another; however, once controls are applied, the resultant emission reduction would be the same regardless of which of the rules required the tank controls.

The regulatory language used in applicability exclusion under §264.1080(b)(7) and §265.1080(b)(7) does not condition the use of the Subpart CC RCRA/CAA overlap exemption on the relative stringency of the CAA rule under which the unit is required to install and operate air emission controls. No mention is made of relative stringency in the rule language. Therefore, the Subpart CC applicability exclusion in paragraph (b)(7) of §264.1080 and §265.1080 does not require that the CAA air emission controls be either equivalent or more stringent than the control device requirements under Subpart CC for the affected waste management unit. Language regarding the relative stringency of the various rules under which a waste management unit could be required to install air emission controls was not considered necessary or meaningful relative to control of these types of waste management units because, as discussed above, the technical requirements for these units are for all practical purposes the same and implementation of the controls results in the same overall level of control performance for the unit. However, the language is quite clear on the fact

ED_002469_00000409-00020

that to qualify for this exemption, the unit must indeed be equipped-with and operating air emissions controls under an applicable CAA regulation in 40 CFR Part 60, Part 61, or Part 63.

In order to qualify for the RCRA/CAA overlap exemption, it is not enough that the unit is merely subject to and in compliance with a particular CAA rule (but does not install air emission controls); the waste management unit must be equipped-with and operating air emission controls to comply with the CAA rule provisions relative to the unit. Similarly, the air emission controls must be installed and operated to comply with the requirements of an applicable CAA regulation. Installing air emission controls to comply with a CAA regulation that is not applicable to the waste management unit, as specified in the subpart, is not sufficient to qualify the unit for the RCRA/CAA overlap exemption.

ED_002469_00000409-00021

Table 1.3.2-1 Summary of RCRA and CAA Technical Control Requirements for Tanks, Surface Impoundments, and Containers

Waste Management Unit	Technical Control Requirements	
	RCRA Part 264/265	CAA Part 63
Tanks - Level 1	Subpart CC	Subpart OO
	• Fixed roof	• Fixed roof
Tanks - Level 2	Subpart CC	Subpart WW
	• Fixed roof with internal floating roof	• Fixed roof with internal floating roof
	• External floating roof	• External floating roof
	• Cover and vent to control device	• Equivalent alternative
	• Pressure Tank	
	• Tank enclosure vented to combustion device	
Surface Impoundments	Subpart CC	Subpart QQ
	• Floating membrane cover	• Floating membrane cover
	• Cover and vent to control device	• Cover and vent to control device
Containers	Subpart CC	Subpart PP
Level 1	• Meet DOT regulations	• Meet DOT regulations
	• Cover container	• Cover container
	• Organic suppression barrier	• Organic suppression barrier
Level 2	• Meet DOT regulations	• Meet DOT regulations
	• Operate with no detectable emissions (Method 21)	• Operate with no detectable emissions (Method 21)
	• Tested vapor tight (Method 27)	• Tested vapor tight (Method 27)
Level 3	• Enclosure vented to control device	• Enclosure vented to control device
	• Vent container to control device	• Vent container to control device

DOT = U.S. Department of Transportation

ED_002469_00000409-00022

2.0 RCRA Air Rules Recordkeeping Requirements for Clean Air Act Exemptions

Documentation is an integral part of the RCRA air emission standards exemptions that are based on compliance with CAA regulations. All three of the RCRA air rule subparts directly refer to documentation of compliance with CAA rules and require that the documentation be kept with, or made readily available with, the facility on-site operating record. Note that "readily available" requires retrieval of information at the regulator's request when, for example, the regulator is scheduled to be on-site.

2.1 Subpart AA–Process Vents

The applicability exemption in §264.1030(e) and §265.1030(d) requires that the documentation of compliance under regulations at 40 CFR Part 60, Part 61, or Part 63 be kept with, or made readily available with, the facility on-site operating record.

2.2 Subpart BB–Equipment Leaks

The recordkeeping compliance alternative in §264.1064(m) and §265.1064(m) requires that the documentation of compliance under regulations at 40 CFR Part 60, Part 61, or Part 63 be kept with or made readily available with the on-site facility operating record.

2.3 Subpart CC–Tanks, Containers, and Surface Impoundments

The recordkeeping provisions of Subpart CC at §264.1089(j) and §265.1090(j) require that the owner or operator of a facility, where a hazardous waste management unit is not using air emission controls in accordance with the applicability exemption specified in §264.1080(b)(7) and §265.1080(b)(7), must record and maintain the following information relevant to the exempt units:

1) certification that the waste management unit is equipped with and operating air emission controls in accordance with the requirements of an applicable Clean Air Act regulation codified under 40 CFR Part 60, Part 61, or Part 63; and
2) identification of the specific requirements codified under 40 CFR Part 60, Part 61, or Part 63 with which the waste management unit is in compliance.

ED_002469_00000409-00023

Paragraph (a) of the Recordkeeping requirements (§264.1089 and §265.1090) requires the owner or operator to record and maintain information required by paragraph (j) in the operating record for as long as the waste management unit is exempt from the Subpart CC control requirements in accordance with the conditions specified in §264.1080(b)(7) or the corresponding paragraphs under Part 265.

2.4 Conclusions

Neither the Subpart AA, BB, or CC regulations themselves nor the accompanying preambles provide comprehensive guidance on the level of detail needed to document compliance with the CAA rules and thus qualify for the RCRA air emission standards exemptions. However, it is clear from the preamble discussions contained in the various Federal Register notices adding or amending these Subpart AA, BB, and CC exemptions, that the minimum documentation would include:

- certification by the owner/operator regarding the fact that the unit, process vent, or equipment is in compliance with applicable regulations under Part 60, Part 61, or Part 63 of the CAA;
- ? certification by the owner/operator that the unit, process vent, or equipment is controlled for air emissions either through installation of a control device (for Subpart AA or Subpart CC) or application of an emission control program such as a LDAR program (for Subpart BB) as required under the applicable CAA regulations;
- identification of each unit, process vent, or equipment component for which the exemption is being claimed and the specific requirements under 40 CFR Part 60, Part 61, or Part 63 with which the unit, process vent, or equipment component is subject to and in compliance with; and
- copies of all records and other documentation required specifically by the 40 CFR Part 60, Part 61, or Part 63 regulations to document or demonstrate that the unit, process vent, or equipment component is in compliance through use of the appropriate emission control equipment (e.g., operating permits, engineering design documentation, source tests, inspection reports) or work practices (e.g., monthly LDAR inspection/monitoring records).

It is also important to note that a TSDF owner or operator claiming the RCRA/CAA overlap exemption will need to submit relevant supporting documentation during the (Part 270) RCRA permit process. The RCRA permit writer will need this relevant information for the particular units or equipment involved even though the facility is eligible for the RCRA/CAA overlap exemption as specified in the RCRA air rule provisions. The permit writer must be able to justify and document why the RCRA permit conditions lack any

ED_002469_00000409-00024

applicable Subpart AA, BB, or CC related requirements and standards. In addition to verifying the appropriateness of the exemption for the facility, the RCRA permit writer needs the information regarding control of organic air emissions to reference the exemption in the Permit Factsheet, Response to Comments, and possibly in the actual RCRA permit. In general, the information, regarding compliance with any CAA rules that qualifies the unit or equipment for exemption under the RCRA Air Rules, should be included in the facility's Part B RCRA permit application. For example, if the facility's CAA Title V permit (or permit application) contains information specific to the hazardous waste management units or equipment for which the exemption is claimed, the owner or operator should include this information in the documentation sent to the RCRA permit writer to support the exemption based on organic air emission controls required under the CAA. Again, an unsupported claim is not sufficient to warrant or justify the exemption.

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3.0 Summary of Clean Air Act Regulations Applicable to Waste Management Units

The EPA fully recognizes that in developing air standards to meet congressional directives established by provisions in the Clean Air Act and Resource Conservation and Recovery Act, the potential exists for regulatory overlap and that it is the EPA's intention to minimize, if not eliminate, regulatory overlap to the extent that the Agency is allowed under the different legislative acts. Section 1006(b) of RCRA requires that the air standards be consistent with and not duplicative of Clean Air Act standards. Similarly, the Clean Air Act voices a strong preference for consistency in CAA section 112 standards and RCRA standards where practicable (see section 112(n)(7)).

The various EPA regulations in 40 CFR Part 60, Part 61, and Part 63 were reviewed to determine which particular subparts might contain provisions that also apply to hazardous waste management units and associated equipment regulated under the RCRA Air Rules and that require control of organic air emissions from waste management units and equipment components. Clean Air Act regulations that potentially might overlap with RCRA Subparts AA, BB, and CC in 40 CFR Part 264 and Part 265 include those listed in Table 3.0-1. This table is not intended to be exhaustive but rather provides a guide for readers regarding which CAA regulations are likely to overlap the RCRA Air Rules.

ED_002469_00000409-00027

Table 3.0-1. Summary of CAA Regulations Potentially Applicable to Waste Management Units.

Regulatory Title	40 CFR Part No.	Subpart	Type of Units Regulated	Comments
		Part 63		
National Emission Standards for Hazardous Air Pollutants from Off-Site Waste and Recovery Operations	Part 63 §63.680 — §63.697	Subpart DD	Process vents, equipment components (e.g., pumps and valves), tanks, surface impoundments, containers, individual drain systems, oil-water separators	Control requirements reference "Standard Standards" in Subparts OO, PP, QQ, RR, and VV
National Emission Standards for Organic Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater (a.k.a. "the HON")	Part 63 §63.110 — §63.152	Subpart G	Wastewater tanks, surface impoundments, containers, individual drain systems, oil/water separators, treatment units (i.e., steam strippers, bio-units, etc.)	This rule is referenced by a number of Part 63 standards for technical control requirements.
National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks	Part 63 §63.160 — §63.182	Subpart H	Equipment components (e.g., pumps and valves)	
National Emission Standards for Organic Hazardous Air Pollutants for Certain Processes Subject to the Negotiated Regulation for Equipment Leaks	Part 63 §63.190 — §63.193	Subpart I	Equipment components (e.g., pumps and valves)	References subpart H of 40 CFR Part 63 for technical standards .

ED_002469_00000409-00028

Table 3.0-1 (Continued)

Regulatory Title	40 CFR Part No.	Subpart	Type of Units Regulated	Comments
Part 63 Standard Standards:	Part 63	See below	See below	These standards do not apply directly to any particular source category but are referenced by other rules to provide technical control requirements.
• National Emission Standards for Tanks-Level 1	§63.900 — §63.907	Subpart OO	Fixed-roof tanks	
• National Emission Standards for Containers	§63.920 — §63.928	Subpart PP	Containers	
• National Emission Standards for Surface Impoundments	§63.940 — §63.948	Subpart QQ	Surface impoundments	
• National Emission Standards for Individual Drain Systems	§63.960 — §63.966	Subpart RR	Drains, sewer lines, junction boxes, etc.	
• National Emission Standards for Oil-Water Separators and Organic-Water Separators	§63.1040 — §63.1049	Subpart VV	Oil/organic - Water Separators	
• National Emission Standards for Closed Vent Systems, Control Devices, Recovery Devices and Routing to a Fuel Gas System or a Process	§63.980 — §63.999	Subpart SS	Process vents and closed-vent systems	
• National Emission Standards for Equipment Leaks — Control Level 1	§63.1000 — §63.1018	Subpart TT	Equipment components (e.g., pumps and valves)	

ED_002469_00000409-00029

Table 3.0-1 (Continued)

Regulatory Title	40 CFR Part No.	Subpart	Type of Units Regulated	Comments
• National Emission Standards for Equipment Leaks — Control Level 2	§63.1019 — §63.1039	Subpart UU	Equipment components (e.g., pumps and valves)	
• National Emission Standards for Storage Vessels (Tanks) — control Level 2	§63.1060 — §63.1066	Subpart WW	Fixed-roof, floating-roof, pressure, and other tanks	
		Part 60		
Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemical Manufacturing Industry	Part 60 §60.480 -- §60.489	Subpart VV	Equipment Components (e.g., pumps and valves)	
Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries	Part 60 §60.590 -- §60.593	Subpart GGG	Equipment Components (e.g., pumps and valves)	References Subpart VV of 40 CFR Part 60 for technical standards.
Standards of Performance for VOC Emissions from Petroleum Refinery Wastewater Systems	Part 60 §60.690 — §60.699	Subpart QQQ	Individual drain systems and oil-water separators	
Standards of Performance for VOC Emissions from SOCMI Wastewater (Proposed only)	Part 60 §60.770 — §60..789	Subpart YYY	Tanks, surface impoundments, containers, individual drain systems, oil-water separators	Proposed regulation contains provisions addressing "Relationship to RCRA" rules (63 FR 68049); i.e., comply with more stringent requirements or request case-by-case determination of requirements. Control requirements reference various Part 60, 61, 63, 264, and 265 rules

ED_002469_00000409-00030

Table 3.0-1 (Continued)

Regulatory Title	40 CFR Part No.	Subpart	Type of Units Regulated	Comments
		Part 61		
National Emission Standard for Equipment Leaks of Benzene	Part 61 §61.110 — §61.112	Subpart J	Equipment Components (e.g., pumps and valves)	References Subpart V of 40 CFR Part 61 for technical standards. Over-rides 40 CFR Part 60 rules.
National Emission Standard for Equipment Leaks	Part 61 §61.240 — §61.247	Subpart V	Equipment Components (e.g., pumps and valves)	Over-rides 40 CFR Part 60 rules.
National Emission Standard for Benzene Waste Operations	Part 61 §61.340 — §61.358	Subpart FF	Tanks, surface impoundments, containers, individual drain systems, oil-water separators	Applies to chemical manufacturing plants, coke by-product plants, and petroleum refineries; the rule also applies to hazardous waste which includes any TSDF that manages waste generated by any of these facility types.

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4.0 Clean Air Act Enforceablility and Operating Permit Considerations

One of the more relevant issues associated with the RCRA/CAA overlap provisions is the general question on how the RCRA permit writer will confirm that hazardous waste treatment units, equipment, and vents potentially subject to RCRA Organic Air Emission Standards (40 CFR 264, Subparts AA, BB, and CC) are also subject to CAA regulations under Part 60, 61, or 63 and that all requirements under the CAA rules are met for these units, equipment, or vents. The discussion below addresses this point and is presented based on the situation where a facility is either with or without a CAA Title V operating permit.

4.1 Facilities With An Operating Permit

EPA rules for State CAA operating permit programs (40 CFR Part 70) require an operating permit for each facility that is a major source as defined in 40 CFR 70.2. According to the EPA's Operating Permits Group of the OAQPS Information Transfer and Program Integration Division, an operating permit for a major source must be comprehensive with respect to including all emission units and all applicable requirements that apply to the units (see 40 CFR 70.3(c)(1)). That is, for major sources, the CAA permit must include all "applicable requirements" for all emission units within the fenceline (except for "insignificant activities") and contain an explanation of any exemptions from otherwise "applicable requirements." An "applicable requirement" is essentially all emission limitations and standards and other requirements through State implementation plans (SIP), NSPS, MACT, NESHAP, and other CAA requirements. For example, the RCRA air emission standards are not an "applicable requirement" under Title V because they are not CAA requirements (RCRA is a separate statute). The CAA standards under Part 60, 61, or 63 are applicable requirements and as such should be included in the CAA Title V operating permit, as applicable to the facility. All terms and conditions in the permit that are required by the CAA or applicable requirements are federally-enforceable. In fact, all Federally-approved rules/requirements are independently enforceable outside of CAA permitting programs. For example, State Implementation Plan (SIP) requirements become

ED_002469_00000409-00033

federally-enforceable when EPA approves the SIP. NSPS, MACT, and NESHAP are federally-enforceable as of their effective date and remain federally enforceable even if the program is delegated to a state or local agency. Therefore, CAA requirements under 40 CFR Parts 60, 61, or 63 are independently enforceable regardless of whether or not the requirements have been incorporated into the facility's Title V permit. An owner or operator with sources subject to regulations under 40 CFR Part 60, 61, or 63 must comply with the applicable requirements of these regulations regardless of the CAA Title V permit status.

The requirements for permit content are described in 40 CFR 70.6. Each permit must include the emission limits and standards including operational requirements and limits that assure compliance with all applicable requirements at the time of permit issuance. All the terms and conditions of the permit , including any "permit shield" granted under 40 CFR 70.6(f), remain in effect until the renewal permit has been issued or denied. The operating permit term is 5 years.

Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action. Section 70.6(f) allows the permitting authority to include a provision stating that compliance with the conditions of the permit shall be deemed compliance with any applicable requirements as of the date of permit issuance provided: (1) such applicable requirements are included and specifically identified in the permit; or (2) the permitting authority determines in writing that other requirements specifically identified are not applicable to the source, and the permit includes the determination or a concise summary of it. This means, in general, that once the applicable requirement is translated into permit terms, the source only must comply with the Title V permit terms. There also are limitations to the provisions that can be "shielded." For example, neither non-compliance nor terms that have not undergone EPA and public review can be shielded by a CAA Title V permit.

The concept of "permit shield" under the CAA is significantly different than the "permit-as-a-shield" practice under RCRA which allows permitted TSDF to be shielded from compliance with regulatory requirements promulgated after the RCRA permit is issued; i.e., compliance with the RCRA permit constitutes compliance with the RCRA program. In general, under this practice, if a new regulation in 40 CFR Part 264 is not in the facility's RCRA permit, the owner or operator is typically not required to comply with that particular rule. This is not the case under the CAA where "shielded" requirements must be specifically identified in the Title V permit. The CAA requires that the permit must be reopened to include newly promulgated requirements if more than 3 years remain in the

ED_002469_00000409-00034

term of the permit. If not, the requirements are included in the permit renewal. In either case, the facility owner or operator must comply with any new regulations under 40 CFR Part 60, 61, or 63, which are independently enforceable, as of their effective date.

There are circumstances where a particular unit or source may not be included or listed in a facility's Title V permit. For example, an emissions unit may not be listed in the permit for a major source if it constitutes an "insignificant activity." State permitting programs have varying definitions of "insignificant activity." Some use a emissions threshold for HAPs (e.g., 2 tpy) and such limits should only be subject to generally applicable requirements of the SIP. Portable units moved onto the site for a short period of time also may not be listed in the permit for a major source. A portable source cannot be a major source. In cases where a particular unit or source is not included or listed in a facility's Title V permit, the unit is not exempt from any applicable CAA requirements under Sections 111 and 112. As this discussion illustrates, in limited cases a HWMU at a facility could be subject to and in compliance with a particular CAA rule but the facility's Title V permit may not clearly identify or list the applicability of the rule.

For a CAA source (either major or non-major) with an operating permit, there are many ways to confirm that a particular unit or piece of equipment is subject to a specific CAA rule and that all CAA requirements imposed by the rule are being met (i.e., in this case, that air emission controls are installed and operating). Foremost among these is the fact that (1) many permitted facilities subject to CAA rules (i.e., NSPS, NESHAP, and MACT) must submit an initial notification of applicability, a notification of compliance status, and annual compliance certifications (these go to the permitting authority and EPA), and must submit excess emission reports and other reports as may be required by the particular CAA rule; (2) the EPA also has authority to make inspections and request information needed to determine compliance under Section 114 of the CAA; and (3) the CAA regulations may include recordkeeping and reporting requirements for units that are below the applicability threshold for the standard but they require the "exempt" units to document the continuing non-applicability of the requirements. The recordkeeping requirements are included in the Title V permit and the exempt units should be noted as exempt in the permit; the records should also be available for EPA inspection.

Where would a RCRA permit writer, inspector, or program staffer find the CAA files on a facility subject to TSDF air rules? According to the OAQPS Operating Permits Group (OPG) Information Transfer and Program Integration Division, the CAA permit rules in 40 CFR part 70 require that the permitting authority provide the Administrator (i.e., the Regional Office) a copy of each permit application, proposed permit, and final permit. The

ED_002469_00000409-00035

format (paper or electronic) and extent (all supporting documentation like test reports) may vary from State to State. Full copies of everything must be held at the State level. This would include the CAA permit and all supporting documentation (e.g., notifications, emission estimates, test reports, and monitoring reports). Depending on the information sought to confirm applicability and compliance with CAA regulations, it might be helpful to first review compliance certifications and compliance schedules for the facility that are included in the permit and semiannual reports which should be available in the CAA operating permit file at both the State and EPA Regional office. An alternative is to look at the facility's semi-annual report that would indicate compliance with each applicable provision. The EPA first contact for this information should be the CAA Title V Program Manager for EPA Region office.

4.2 Facilities Without an Operating Permit

As discussed in earlier sections, there is a population of non-major sources that are not currently in the CAA Title V permitting universe due to deferrals that are expected to continue for the next few years. These facilities may nonetheless contain units that are subject to and in compliance with CAA regulations under 40 CFR Part 60, 61, or 63 as well as being potentially subject to the RCRA Air Rules in Subpart AA, BB or CC. While EPA has deferred CAA permit requirements for non-major sources, the NSPS, MACT, and NESHAP requirements that apply to these facilities are federally-approved rules and, as such, they are independently enforceable. Therefore, an owner or operator with sources subject to regulations under 40 CFR Part 60, 61, or 63 must comply with the applicable requirements of these regulations regardless of the CAA Title V permit status.

It is also of interest to note that when a permit is issued for any non-major source (including an area source) under the CAA Part 70 program, those units that are subject to NSPS, NESHAP, and MACT rules must be included in the permit for the non-major source; all applicable requirements under the rules must be included for these units. (See 40 CFR 70.3.)

For a CAA non-major source without a Title V operating permit, there also are ways to confirm that a particular unit or piece of equipment is subject to a specific CAA rule and that all CAA requirements imposed by the rule are being met (i.e., that air emission controls are installed and operating). Again, the most direct among these is the fact that under most CAA NSPS, NESHAP, and MACT regulations, facilities must submit an initial notification of applicability, a notification of compliance status, and must routinely submit excess emission reports and other reports as may be required by the particular CAA rule. These

ED_002469_00000409-00036

reports provide a sound basis for making the determination regarding CAA rule emission controls and compliance relative to the RCRA air rule exemptions.

It should be pointed out that in general there is less assurance of continuous compliance with CAA rules at a facility with no operating permit. Compliance with the individual rules is typically assessed by inspections and EPA review of reports required by the CAA rules. EPA authority under section 114 also can be used to collect additional information needed to assess compliance.

4.3 Conclusions

Based on the above discussion, it appears that there are situations where either a facility may not have a CAA operating permit or their permit does not include all units and yet the owner/operator has installed and is operating air emission controls on a unit because of applicable CAA rules under 40 CFR Part 60, 61, or 63. Therefore, it does not seem reasonable that the RCRA air rule exemptions or exclusions included in Subparts AA, BB, and CC for CAA rule controls should not be considered or allowed merely on the grounds that the applicable CAA rule requiring installation and operation of emission controls is not incorporated into the facility's CAA Title V operating permit. The key point that must be considered under the RCRA air rule provisions for the exemption or exclusion is that the potentially affected unit must be equipped with and operating air emission controls in accordance with an applicable CAA regulation codified in 40 CFR Part 60, 61, or 63; and that this fact must be adequately documented by the owner/operator as required in the RCRA air rule provisions relevant to the RCRA/CAA overlap exemption.

ED_002469_00000409-00037

Message

From: DUVAL Rich [rich.duval@state.or.us]
Sent: 3/13/2017 10:17:04 PM
To: Knittel, Janette [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=a955f914e8d34cb19b6f63ac60707d32-Knittel, Janette]
Subject: FW: Chem Waste issued
Attachments: removed.txt; 11-0002-SI-01-PmtMod1-28517-FNL.docx; 11-0002-SI-01-RRmod1-28517-FNL.docx

---

From: WELCH Doug
Sent: Monday, April 25, 2016 2:04 PM
To: Denson, Jim; DUVAL Rich
Subject: FW: Chem Waste issued

FYI

The AQ permit modification for Chem Waste has been issued.

Thanks,
Doug

From: SWOFFORD Nancy
Sent: Monday, April 25, 2016 2:03 PM
To: WELCH Doug
Subject: Chem Waste issued

I just issued the Chem Waste Mod. Documents are attached and also in the x-drive.

The paperwork is in the mail headed your way.

Nancy Swofford
Air Quality Permit Coordinator
DEQ ER-Bend Office
541-633-2021
swofford.nancy@deq.state.or.us
www.oregon.gov/DEQ

State of Oregon
Department of
Environmental
Quality

SIMPLE
AIR CONTAMINANT DISCHARGE PERMIT

Department of Environmental Quality
Eastern Region
475 NE Bellevue Dr., Suite 110
Bend, OR 97701
541-388-6146

This permit is being issued in accordance with the provisions of ORS 468A.040 and based on the land use compatibility findings included in the permit record.

ISSUED TO:

Chemical Waste Management of the Northwest, Inc.
17629 Cedar Springs Lane
Arlington, OR 97812

INFORMATION RELIED UPON:

Application No.: 28517
Date Received: 02/09/2016

PLANT SITE LOCATION:

17629 Cedar Springs Lane
Arlington, OR 97812

LAND USE COMPATIBILITY FINDING:

Approving Authority: Gilliam County
Approval Date: 10/15/2007

ISSUED BY THE DEPARTMENT OF ENVIRONMENTAL QUALITY

(Signature on File)
Mark W. Bailey, Eastern Region Air Quality Manager

April 25, 2016
Dated

Source(s) Permitted to Discharge Air Contaminants (OAR 340-216-8010):

Table 1 Code	Source Description	SIC
Part B, 85	Hazardous Waste Material Disposal Site	4953

Simple Technical Permit Modification
Addendum No. 1

In accordance with OAR 340-216-0020, this permit has been modified.

TABLE OF CONTENTS

1.0 GENERAL EMISSION STANDARDS AND LIMITS

1.1. Visible Emissions

Emissions from any air contaminant source other than fugitive emission sources must not equal or exceed 20% opacity. Opacity must be measured as a six-minute block average using EPA Method 9 or an alternative monitoring method approved by DEQ that is equivalent to EPA Method 9. EPA Method 22 may be used to monitor opacity, but EPA Method 9 must be used to determine compliance with the limit.

1.2. Particulate Matter Emissions

The permittee must comply with the following particulate matter emission limits, as applicable:

a. Particulate matter emissions from any fuel burning equipment such as the Organic Recovery Unit (ORU) or the ORU boiler (ME-1902) must not exceed 0.10 grains per dry standard cubic foot, corrected to 12% CO_2 or 50% excess air.

b. Particulate matter emissions from any air contaminant source other than fuel burning equipment and fugitive emission sources must not exceed 0.10 grains per standard cubic foot.

c. Non-fugitive particulate matter emissions from any process must not exceed the amount shown in Table 1 of OAR 340-226-0310 for the process weight allocated to such a process.

1.3. Fugitive Emissions

The permittee must take reasonable precautions to prevent fugitive dust emissions, as measured by EPA Method 22, by:

a. Using, where possible, water or chemicals for control of dust in the demolition of existing buildings or structures, construction operations, the grading of roads or the clearing of land;

b. Applying water or other suitable chemicals on unpaved roads, materials stockpiles, and other surfaces which can create airborne dusts;

c. Enclosing (full or partial) materials stockpiles in cases where application of water or other suitable chemicals are not sufficient to prevent particulate matter from becoming airborne;

d. Installing and using hoods, fans and fabric filters to enclose and vent the handling of dusty materials;

e. Installing adequate containment during sandblasting or other similar operations;

f. Covering, at all times when in motion, open bodied trucks transporting materials likely to become airborne;

g. Promptly removing earth or other material that does or may become airborne from paved streets; and

h. Developing a DEQ approved fugitive emission control plan upon request by DEQ if the above precautions are not adequate and implementing the plan whenever fugitive emissions leave the property for more than 18 seconds in a six-minute period.

1.4. Particulate Matter Fallout

The permittee must not cause or permit the deposition of any particulate matter larger than 250 microns in size at sufficient duration or quantity, as to create an observable deposition upon the real property of another person.

1.5. Nuisance and Odors

The permittee must not cause or allow air contaminants from any source to cause a nuisance. Nuisance conditions will be verified by DEQ personnel.

1.6. Fuels and Fuel Sulfur Content

a. If the permittee burns any of the fuels listed below, the sulfur content cannot exceed:
   i. 0.0015% sulfur by weight for ultra low sulfur diesel;
   ii. 0.3% sulfur by weight for ASTM Grade 1 distillate oil;
   iii. 0.5% sulfur by weight for ASTM Grade 2 distillate oil;

b. The permittee is allowed to use on-specification used oil as fuel which contains no more than 0.5% sulfur by weight. The permittee must obtain analyses from the marketer or, if generated on site, have the used oil analyzed, so that it can be demonstrated that each shipment of oil does not exceed the used oil specifications contained in 40 CFR Part 279.11, Table 1.

1.7. Emergency Stationary RICE

The permittee must comply with the following requirements for emergency stationary reciprocating internal combustion engines (RICE): [40 CFR 63.6603(a), 63.6625(f), 63.6640(a), and 63.6640(f)(2)]

For each emergency stationary RICE, the permittee must:

a. Change oil and filter every 500 hours of operation or annually, whichever comes first; [40 CFR 63. 6603(a), Table 2d(4)(a)]
b. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first; [40 CFR 63. 6603(a), Table 2d(4)(b)]
c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary; [40 CFR 63. 6603(a), Table 2d(4)(c)]
d. During periods of startup, minimize the engine's time spent at idle and minimize the engine's startup time at startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations apply; and [40 CFR 63. 6603(a), Table 2d]
e. The permittee must install a non-resettable hour meter on each emergency stationary RICE, if one is not already installed. [40 CFR 63.6625(f)]

1.8. Operating Conditions for Emergency Stationary RICE

The permittee must operate any emergency stationary RICE in compliance with the following conditions: [40 CFR 63.6640(f)]

a. There is no time limit on the use of emergency stationary RICE in emergency situations.

b. Emergency stationary RICE may be operated for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by the manufacturer, the vendor, or the insurance company associated with the engine. Required maintenance and testing of such units is limited to 50 hours per year.
c. The permittee is prohibited from using its emergency stationary RICE for any non-emergency use including but not limited to peak shaving, demand response operation, and/or generation of income from the sale of power. To perform such activity the permittee must first obtain a modified permit in accordance with Condition 7.2 or a separate permit for power generation that appropriately addresses and allows this activity.

1.9. Operating Conditions for Emergency Stationary RICE

The permittee must keep records of the hours of operation of each emergency stationary RICE that is recorded through the non-resettable hour meter. The permittee must document how many hours are spent for emergency operation; including what classified the operation as emergency and how many hours are spent for non-emergency operation used for maintenance checks and readiness testing. [40 CFR 63.6655(f)]

2.0 SPECIFIC PERFORMANCE AND EMISSION STANDARDS

2.1. Concrete Crusher Engine

If the permittee installs a diesel engine to power a concrete crusher, the engine must comply with the New Source Performance Standards (NSPS) for Compression Ignition Internal Combustion Engines (40 CFR 60, Subpart IIII). This regulation includes the requirement for engines with a maximum engine power greater than or equal to 56 kW and less than 130 kW to meet the applicable requirements for 2012 and later model year non-emergency engines. [40 CFR 60.4208(d)] If a third party is contracted to conduct concrete crushing, the third party may have the applicable requirements in their portable permit.

3.0 PLANT SITE EMISSION LIMITS

3.1. Plant Site Emission Limits (PSEL)

The permittee must not cause or allow plant site emissions to exceed the following:

Pollutant	Limit	Units
PM	24	tons per year
PM_{10}	14	tons per year
$PM_{2.5}$	9	tons per year
SO_2	39	tons per year
NO_x	39	tons per year
CO	99	tons per year
VOC	39	tons per year
GHGs (CO_2e)	74,000	tons per year

3.2. Annual Period

The annual plant site emission limits apply to any 12-consecutive calendar month period.

4.0 COMPLIANCE DEMONSTRATION AND SOURCE TESTING

4.1. Monitoring Requirements

The permittee must monitor the operation and maintenance of the organic recovery unit and thermal oxidizer. The temperature of the thermal oxidizer must be continuously monitored and recorded at least every 15 minutes of operation. The operator shall be notified of any flame failure.

4.2. PSEL Compliance Monitoring

The permittee must demonstrate compliance with the PSEL for each 12-consecutive calendar month period based on the following calculation for each pollutant except GHGs:

$$E = \Sigma(EF \times P)/2000 \text{ lbs}$$

Where:

E = pollutant emissions (ton/yr);
EF = pollutant emission factor (see Condition 11.0);
P = process production (see Condition 12.0)

4.3. Emission Factors

The permittee must use the default emission factors provided in Condition 11.0 for calculating pollutant emissions, unless alternative emission factors are approved in writing by DEQ. The permittee may request or DEQ may require using alternative emission factors provided they are based on actual test data or other documentation (e.g., AP-42 compilation of emission factors) that has been reviewed and approved by DEQ.

5.0 RECORDKEEPING REQUIREMENTS

5.1. Operation and Maintenance

The permittee must maintain the following records related to the operation and maintenance of the plant and associated air contaminant control devices:

a. Amount of propane fed to the thermal oxidizer (TOU-1), gallons.
b. Amount of material processed through the stabilization, solidification, micro-encapsulation, macro-encapsulation, and bioremediation units, tons.
c. Amount of propane fed to the Organic Recovery Unit (ORU), gallons
d. Amount of landfill gas fed to the Organic Recovery Unit (ORU), $MMft^3$.
e. Miles traveled on unpaved roads, VMT.
f. Amount of cover soil moved, tons.
g. Temperature of thermal oxidizer, °F.
h. If used oil is used as fuel, the permittee must obtain analyses from the marketer or, if generated on site, have the used oil analyzed, so that it can be demonstrated that the used oil does not exceed the used oil specifications contained in 40 CFR Part 279.11, Table 1.

5.2. Excess Emissions

The permittee must maintain records of excess emissions as defined in OAR 340-214-0300 through 340-214-0340 (recorded on occurrence). Typically, excess emissions are caused by process upsets, startups, shutdowns or scheduled maintenance. In many cases, excess emissions are evident when visible emissions are greater than 20% opacity as a six-minute block average. If there is an ongoing excess emission caused by an upset or breakdown, the permittee must cease operation of the equipment or facility no later than 48 hours after the beginning of the excess emissions, unless continued operation is approved by DEQ in accordance with OAR 340-214-0330(4).

5.3. Complaint Log

The permittee must maintain a log of all written complaints and complaints received via telephone that specifically refer to air pollution concerns associated to the permitted facility. The log must include a record of the permittee's actions to investigate the validity of each complaint and a record of actions taken for complaint resolution.

5.4. Retention of Records

Unless otherwise specified, the permittee must retain all records for a period of at least five (5) years from the date of the monitoring sample, measurement, report or application and make them available to DEQ upon request. The permittee must maintain the two (2) most recent years of records onsite.

6.0 REPORTING REQUIREMENTS

6.1. Excess Emissions

The permittee must notify DEQ of excess emissions events if the excess emission is of a nature that could endanger public health.

a. Such notice must be provided as soon as possible, but never more than one hour after becoming aware of the problem. Notice must be made to the regional office identified in Condition 9.0 by e-mail, telephone, facsimile, or in person.
b. If the excess emissions occur during non-business hours, the permittee must notify DEQ by calling the Oregon Emergency Response System (OERS). The current number is 1-800-452-0311.
c. The permittee must also submit follow-up reports when required by DEQ.

6.2. Annual Report

For each year this permit is in effect, the permittee must submit to DEQ by **February 15** two (2) copies of the following information for the previous calendar year:

a. Operating parameters:
   i. Amount of propane burned in the thermal oxidizer each month;
   ii. Amount of propane and landfill gas burned in the ORU each month;
   iii. Amount of material processed through the stabilization, solidification, micro-encapsulation, macro-encapsulation, and bioremediation units each month;
   iv. Estimate the amount of vehicle miles traveled on unpaved roads each month.
b. A summary of annual pollutant emissions determined each month in accordance with Condition 4.0.
c. Records of all planned and unplanned excess emissions events.
d. Summary of complaints relating to air quality received by permittee during the year.
e. List permanent changes made in plant process, production levels, and pollution control equipment which affected air contaminant emissions.
f. List of major maintenance performed on pollution control equipment.

6.3. Greenhouse Gas Registration and Reporting

If the calendar year emission rate of greenhouse gases (CO_2e) is greater than or equal to 2,756 tons (2,500 metric tons), the permittee must register and report its greenhouse gas emissions with DEQ in accordance with OAR 340-215.

6.4. Notice of Change of Ownership or Company Name

The permittee must notify DEQ in writing using a Departmental "Transfer Application" form within 60 days after the following:

a. Legal change of the name of the company as registered with the Corporations Division of the State of Oregon; or
b. Sale or exchange of the activity or facility.

6.5. Construction or Modification Notices

The permittee must notify DEQ in writing using a Departmental "Notice of Intent to Construct" form, or other permit application forms and obtain approval in accordance with OAR 340-210-0205 through 340-210-0250 before:

a. Constructing, installing or establishing a new stationary source that will cause an increase in any regulated pollutant emissions;
b. Making any physical change or change in operation of an existing stationary source that will cause an increase, on an hourly basis at full production, in any regulated pollutant emissions; or
c. Constructing or modifying any air pollution control equipment.

7.0 ADMINISTRATIVE REQUIREMENTS

7.1. Permit Renewal Application

The permittee must submit the completed application package for renewal of this permit by October 1, 2018. The permittee must submit two (2) copies of the application to the DEQ Permit Coordinator listed in Condition 9.2.

7.2. Permit Modifications

The permittee must submit an application for a modification of this permit not less than **60** days prior to the source modification. A special activity fee must be submitted with an application for the permit modification. The fees and two (2) copies of the application must be submitted to the Business Office of DEQ.

8.0 FEES

8.1. Annual Compliance Fee

The permittee must pay the Annual Fee specified in OAR 340-216-8020, Table 2, Part 2 for a Simple ACDP by **December 1** of each year this permit is in effect. An invoice indicating the amount, as determined by DEQ regulations, will be mailed prior to the above date. **Late fees in accordance with Part 4 of the table will be assessed as appropriate.**

8.2. Change of Ownership or Company Name Fee

The permittee must pay the non-technical permit modification fee specified in OAR 340-216-8020, Table 2, Part 3(a) with an application for changing the ownership or the name of the company.

8.3. Special Activity Fees The permittee must pay the special activity fees specified in OAR 340-216-8020, Table 2, Part 3 (b through k) with an application to modify the permit.

9.0 DEQ CONTACTS / ADDRESSES

9.1. Business Office The permittee must submit payments for invoices, applications to modify the permit, and any other payments to DEQ's Business Office:

Department of Environmental Quality
Accounting / Revenue
811 SW Sixth Avenue
Portland, OR 97204-1390

9.2. Permit Coordinator The permittee must submit all Notices and applications that do not include payment to the Eastern Region's Permit Coordinator:

Eastern Region - Bend Office
475 NE Bellevue Dr., Suite 110
Bend, OR 97701
541-388-6146

9.3. Report Submittals Unless otherwise notified, the permittee must submit all reports (annual reports, source test plans and reports, etc.) to DEQ's Eastern Region. If you know the name of the Air Quality staff member responsible for your permit, please include it.

Eastern Region – Bend Office
475 NE Bellevue Dr., Suite 110
Bend, OR 97701
541-388-6146

9.4. Permit Writer/ Inspector The permit writer/inspector can be reached at the following office:

Eastern Region – Pendleton Office
800 SE Emigrant Avenue, Suite 330
Pendleton, OR 97801-2597
541-276-4063

9.5. Website Information about air quality permits and DEQ's regulations may be obtained from the DEQ web page at www.oregon.gov/DEQ.

10.0 GENERAL CONDITIONS AND DISCLAIMERS

10.1. Permitted Activities This permit allows the permittee to discharge air contaminants from processes and activities related to the air contaminant source(s) listed on the first page of this permit until this permit expires, is modified, or is revoked.

10.2. Other Regulations In addition to the specific requirements listed in this permit, the permittee must comply with all other legal requirements enforceable by DEQ.

10.3. Conflicting Conditions In any instance in which there is an apparent conflict relative to conditions in this permit, the most stringent conditions apply.

10.4. Masking of Emissions The permittee must not cause or permit the installation of any device or use any means designed to mask the emissions of an air contaminant that causes or is likely to cause detriment to health, safety, or welfare of any person or otherwise violate any other regulation or requirement.

10.5. DEQ Access The permittee must allow DEQ's representatives access to the plant site and pertinent records at all reasonable times for the purposes of performing inspections, surveys, collecting samples, obtaining data, reviewing and copying air contaminant emissions discharge records and conducting all necessary functions related to this permit in accordance with ORS 468-095.

10.6. Permit Availability The permittee must have a copy of the permit available at the facility at all times.

10.7. Open Burning The permittee may not conduct any open burning except as allowed by OAR 340, division 264.

10.8. Asbestos The permittee must comply with the asbestos abatement requirements in OAR 340, Division 248 for all activities involving asbestos-containing materials, including, but not limited to, demolition, renovation, repair, construction, and maintenance.

10.9. Property Rights The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations.

10.10. Permit Expiration

a. A source may not be operated after the expiration date of the permit, unless any of the following occur prior to the expiration date of the permit:

   i. A timely and complete application for renewal or for an Oregon Title V Operating Permit has been submitted, or

   ii. Another type of permit (ACDP or Oregon Title V Operating Permit) has been issued authorizing operation of the source.

b. For a source operating under an ACDP or Oregon Title V Operating Permit, a requirement established in an earlier ACDP remains in effect notwithstanding expiration of the ACDP, unless the provision expires by its terms or unless the provision is modified or terminated according to the procedures used to establish the requirement initially.

10.11. Permit Termination, Revocation, or Modification DEQ may modify or revoke this permit pursuant to OAR 340-216-0082 and 340-216-0084.

11.0 EMISSION FACTORS

Emissions Device or Activity	Pollutant	Emission Factor (EF)	EF Units	EF Reference
Thermal Oxidizer (TOU-1)	$PM/PM_{10}/PM_{2.5}$	0.7	lb/Mgal	AP-42 Table 1.5-1
	SO_2	11.22	lb/Mgal	AP-42 Table 1.5-1
	NO_x	13	lb/Mgal	AP-42 Table 1.5-1
	CO	7.5	lb/Mgal	AP-42 Table 1.5-1
	VOC	1.0	lb/Mgal	AP-42 Table 1.5-1
Organic Recovery Unit (ORU) Propane	$PM/PM_{10}/PM_{2.5}$	0.7	lb/Mgal	AP-42 Table 1.5-1
	SO_2	11.22	lb/Mgal	AP-42 Table 1.5-1
	NO_x	13	lb/Mgal	AP-42 Table 1.5-1
	CO	7.5	lb/Mgal	AP-42 Table 1.5-1
	VOC	0.8	lb/Mgal	AP-42 Table 1.5-1
Organic Recovery Unit (ORU) Landfill Gas	$PM/PM_{10}/PM_{2.5}$	9.35	lb/MMdscf	AP-42 Table 2.4-5
	SO_2	49.9	lb/MMdscf	Source Estimate
	NO_x	37.4	lb/MMdscf	AP-42 Table 2.4-4
	CO	170.5	lb/MMdscf	AP-42 Table 13.5-2
	VOC	77	lb/MMdscf	AP-42 Table 13.5-1
ORU Boiler (ME-1902)	$PM/PM_{10}/PM_{2.5}$	0.7	lb/Mgal	AP-42 Table 1.5-1
	SO_2	11.22	lb/Mgal	AP-42 Table 1.5-1
	NO_x	13	lb/Mgal	AP-42 Table 1.5-1
	CO	7.5	lb/Mgal	AP-42 Table 1.5-1
	VOC	1.0	lb/Mgal	AP-42 Table 1.5-1
Concrete Crusher Engine	$PM/PM_{10}/PM_{2.5}$	2.2E-03	lb/hp-hr	AP-42 Section 3.3
	SO_2	2.05E-03	lb/hp-hr	AP-42 Section 3.3
	NO_x	3.1E-02	lb/hp-hr	AP-42 Section 3.3
	CO	6.68E-03	lb/hp-hr	AP-42 Section 3.3
	VOC	2.47E-03	lb/hp-hr	AP-42 Section 3.3
Waste Oil Heater	PM	3.3	lb/Mgal	AP-42 Section 11.1
	$PM_{10}/PM_{2.5}$	2.85	lb/Mgal	AP-42 Section 11.1
	SO_2	214	lb/Mgal	AP-42 Table 1.11-2
	NO_x	16	lb/Mgal	AP-42 Table 1.11-2
	CO	2.1	lb/Mgal	AP-42 Table 1.11-2
	VOC	1.0	lb/Mgal	AP-42 Table 1.11-2

Emissions Device or Activity	Pollutant	Emission Factor (EF)	EF Units	EF Reference
Stabilization	PM	1.36E-04	lb/ton	AP-42 Section 13.2.4
	PM_{10}	6.45E-05	lb/ton	AP-42 Section 13.2.4
	$PM_{2.5}$	9.77E-06	lb/ton	AP-42 Section 13.2.4
Solidification	PM	0.12	lb/ton	AP-42 Equation 11.12-1
	PM_{10}	0.04	lb/ton	AP-42 Equation 11.12-1
	$PM_{2.5}$	1.29E-05	lb/ton	AP-42 Equation 11.12-1
Micro-Encapsulation	PM	0.143	lb/ton	Source Estimate
	PM_{10}	0.045	lb/ton	Source Estimate
	$PM_{2.5}$	0.00001	lb/ton	Source Estimate
Macro-Encapsulation	PM	0.13	lb/ton	Source Estimate
	PM_{10}	0.0587	lb/ton	Source Estimate
	$PM_{2.5}$	0.00001	lb/ton	Source Estimate
Unpaved Roads	PM	1.31	lb/VMT	AP-42 Section 13.2.2
	PM_{10}	0.35	lb/VMT	AP-42 Section 13.2.2
	$PM_{2.5}$	0.04	lb/VMT	AP-42 Section 13.2.2
Cover Soil	PM	0.118	lb/ton	AP-42 Section 11.9
	PM_{10}	0.095	lb/ton	AP-42 Section 11.9
	$PM_{2.5}$	0.034	lb/ton	AP-42 Section 11.9

12.0 PROCESS/PRODUCTION RECORDS

Emissions Device or Activity	Process or Production Parameter	Frequency
Thermal Oxidizer (TOU-1)	1000 Gallons Propane	Monthly
Organic Recovery Unit (ORU)	1000 Gallons Propane MMdscf Landfill Gas	Monthly
ORU Boiler (ME-1902)	1000 Gallons Propane	Monthly
Concrete Crusher Engine	hp-hr	Monthly
Waste Oil Heater	1000 Gallons Waste Oil	Monthly
Stabilization, Solidification, Micro-Encapsulation, Macro-Encapsulation, Cover Soil	Tons Material	Monthly
Travel on Unpaved Roads	VMT	Monthly

13.0 ABBREVIATIONS, ACRONYMS AND DEFINITIONS

ACDP	Air Contaminant Discharge Permit
ASTM	American Society for Testing and Materials
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CO_2e	Carbon Dioxide Equivalent
DEQ	Oregon Department of Environmental Quality
dscf	dry standard cubic foot
EPA	US Environmental Protection Agency
Gal	Gallon(s)
GHG	Greenhouse Gas
gr/dscf	grains per dry standard cubic foot
HAP	Hazardous Air Pollutant as defined by OAR 340-244-0040
lb	Pound(s)
LFG	Landfill Gas
MMBtu	Million British thermal units
NA	Not Applicable
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NO_X	Nitrogen Oxides
NSPS	New Source Performance Standard
NSR	New Source Review
O_2	Oxygen
OAR	Oregon Administrative Rules
ORS	Oregon Revised Statutes
O&M	Operation and Maintenance
Pb	Lead
PCD	Pollution Control Device
PM	Particulate Matter
PM_{10}	Particulate Matter less than 10 microns in size
$PM_{2.5}$	Particulate Matter less than 2.5 microns in size
ppm	part per million
PSD	Prevention of Significant Deterioration
PSEL	Plant Site Emission Limit
RACT	Reasonably Available Control Technology
scf	standard cubic foot
SER	Significant Emission Rate
SIC	Standard Industrial Code
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
Special Control Area	as defined in OAR 340-204-0070
VE	Visible Emissions
VMT	Vehicle Mile Traveled
VOC	Volatile Organic Compound
year	A period consisting of any 12-consecutive calendar months

State of Oregon
Department of
Environmental
Quality

SIMPLE AIR CONTAMINANT DISCHARGE PERMIT
REVIEW REPORT

Department of Environmental Quality
Eastern Region

Source Information:

SIC	4953
NAICS	562211

Source Categories (Table 1 Part, code)	B,85
Public Notice Category	I

Compliance and Emissions Monitoring Requirements:

FCE	No
Compliance schedule	No
Unassigned emissions	No
Emission credits	No
Special Conditions	No

Source test [date(s)]	No
COMS	No
CEMS	No
PEMS	No
Ambient monitoring	No

Reporting Requirements

Annual report (due date)	2/15
Quarterly report (due dates)	No

Monthly report (due dates)	No
Excess emissions report	No
Other (specify)	No

Air Programs

Synthetic Minor (SM)	No
SM -80	No
NSPS (list subparts)	IIII
NESHAP (list subparts)	ZZZZ
Part 68 Risk Management	No
CFC	No

NSR	No
PSD	No
RACT	No
TACT	X
Other (specify)	No

TABLE OF CONTENTS

PERMITTING

PERMITTEE IDENTIFICATION

1. Chemical Waste Management of the Northwest, Inc. operates a hazardous waste and polychlorinated biphenyl (PCB) treatment, storage, and disposal facility about 12 miles south-southwest of Arlington.

PERMITTING ACTION

2. The proposed permit is a modification of an existing Air Contaminant Discharge Permit (ACDP) that was issued on 2/7/2014 is scheduled to expire on 2/1/2019.

OTHER PERMITS

3. Other permits issued or required by the DEQ for this source include a Hazardous Waste Treatment Storage and Disposal Permit ORD089452353 and a NPDES Storm Water Permit 100043.

ATTAINMENT STATUS

4. The source is located in an attainment area for all pollutants.

5. The source is not located within 10 kilometers of any Class I Air Quality Protection Area.

SOURCE DESCRIPTION

OVERVIEW

6. The permittee operates a hazardous waste and PCB treatment, storage and disposal facility. The facility began accepting waste about 1977.

7. The following changes have been made to the facility since the last permit renewal:

   a. The permittee has proposed to supplement the indirect heating of the ORU using treated landfill gas generated at the adjacent Columbia Ridge Landfill and Recycling Center. Currently the 30 MMBtu/hr burners of the ORU are fueled by propane only. The burners will be allowed to combust propane, landfill gas, or any combination of the two fuels.
   b. A new 6 MMBtu/hr thermal oxidizer has been proposed to replace the existing elevated enclosed flare on the ORU.

c. Several above-ground storage tanks associated with the ORU are being added to the inventory of tanks at the facility. These 20 new tanks have a capacity of 20,000 gallons or less and are not subject to the New Source Performance Standards (NSPS) for Volatile Organic Liquid Storage Vessels (Subpart Kb). Due to the vapor pressure of the liquids stored in these tanks, emissions from these units are considered to have de-minimus emissions.
d. A system for collecting vapor from the waste feed hopper and conveyors will be installed on the ORU. The vapors will be routed to the thermal oxidizer.
e. A series of heat exchangers, cooling towers, carbon and sand filters, and pumping systems will be installed on the ORU. These systems are sealed units used to process liquids and will not vent to the atmosphere.
f. New fuel storage tanks for propane and landfill gas used to heat the ORU will be installed.
g. A new propane-fired 1.046 MMBtu/hr boiler will be installed.
h. A new emergency 600 bhp generator will provide backup power in case of emergencies.

PROCESS AND CONTROL DEVICES

8. Hazardous waste is received packaged in according to U.S. Dept. of Transportation standards. Containers are temporarily stored to allow for sampling and waste conformance before processing. Wastes that are similar may be stored in approved areas to facility on-site treatment or subsequent treatment off-site.

a. **Bulk Storage:** Bulk materials received by the facility are stored in bulk storage buildings B-1, B-2, B-4 and B-5. These buildings operate under negative pressure to prevent fugitives and vent through baghouses that have a 98% control efficiency.
b. **Solidification** involves treatment of liquids and semi-solids with reagents that form a solid material and does not necessarily involve a chemical reaction between the contaminants and the solidifying reagents. Contaminant migration is thus restricted. The process takes place outdoors, but the material is wet which suppresses fugitive dust emissions. Emissions are uncontrolled.
c. **Stabilization/Encapsulation** involves treatment with reagents that chemically reduce the hazard potential of waste by converting the contaminants into less soluble, mobile or toxic forms. Macro encapsulation also includes the use of a high density polyethylene (HDPE) vault to encapsulate the waste that has been mixed with the stabilization agent. Stabilization is performed outdoors. Water may be added to mitigate fugitive dust emissions.
d. **Solar Evaporation Impoundments:** Aqueous liquid wastes are placed into a surface impoundment for evaporation. These wastes have been treated in the Wastewater Treatment Unit or otherwise treated to meet RCRA standards. These units are insignificant sources of volatile compounds.

e. **Bioremediation** relies on micro-organisms such as bacteria or fungi to transform hazardous chemicals (petroleum hydrocarbons, nitroaromatics and nitroamines, chlorinated pesticides and other select organics) into less toxic or non-toxic substances. Bioremediation activities occur in building B-5, which employs a baghouse for dust control.

f. **Landfilling Operation:** The wastes disposed of on-site are previously treated or treated on-site to meet the stringent standards for disposal under the RCRA regulations. Due to the RCRA pre-treatment requirements, the wastes placed in the landfill organic emissions from the landfill are insignificant. A limited amount of cover soil is used during the landfilling activities which produce some particulate emissions.

g. **Organic Recovery Unit (ORU):** The organic recovery unit was originally constructed in 2008 and will be modified with this permit modification. The ORU physically treats soil or other media contaminated with petroleum products or other organics. The organics are thermally desorbed from the media at low temperatures using indirect heat. The media is cooled, moisturized and tested for compliance with RCRA requirements before being landfilled. The organic vapors are condensed with the resulting liquid being recycled or treated prior to disposal. Any residual non-condensable gas is destroyed in a thermal oxidizer.

COMPLIANCE

9. The facility was inspected on 10/29/2012 and found to be out of compliance with permit conditions for failure to properly monitor operation of the ORU. This was also a violation of conditions in the Hazardous Waste Permit. The Air Quality Program did not refer this violation for enforcement since it was referred by the Hazardous Waste Program. On 1/23/2013 an $18,400 civil penalty was assessed for the violation. Conditions which led to the violation have since been corrected.

10. During the prior permit period there were no, complaints recorded for this facility.

EMISSIONS

11. Proposed PSEL information:

Pollutant	Baseline Emission Rate (tons/yr)	Netting Basis		Plant Site Emission Limits (PSEL)		
		Previous (tons/yr)	Proposed (tons/yr)	Previous PSEL (tons/yr)	Proposed PSEL (tons/yr)	PSEL Increase (tons/yr)
PM	0	0	0	24	24	0
PM_{10}	0	0	0	14	14	0
$PM_{2.5}$	0	0	0	9	9	0
SO_2	0	0	0	39	39	0
NO_x	0	0	0	39	39	0
CO	0	0	0	99	99	0
VOC	0	0	0	39	39	0
GHG (CO_2e)	0	0	0	74,000	74,000	0

a. The netting basis is zero for Simple ACDPs in accordance with OAR 340-222-0040(3).
b. The previous PSEL is the PSEL in the last permit.
c. For Simple ACDPs, The proposed PSELs for all pollutants are equal to the Generic PSEL in accordance with OAR 340-216-0064(3)(b). The actual emissions are calculated in the Detail Sheets attached to this Review Report.
d. The PSEL is a federally enforceable limit on the potential to emit.

SIGNIFICANT EMISSION RATE ANALYSIS

12. For each pollutant, the proposed Plant Site Emission Limit is less than the Netting Basis plus the significant emission rate, thus no further air quality analysis is required.

13. An analysis of the proposed PSEL increases over the Netting Basis is shown in the following table.

Pollutant	SER	Requested Increase Over Previous Netting Basis	Increase Due to Utilizing Capacity that Existed in Baseline Period	Increase Due to Physical Changes or Changes in Method of Operation	Increase Due to Changes to Rules (i.e., the Generic PSEL)
PM	25	24	0	13	11
PM_{10}	15	14	0	6	8
$PM_{2.5}$	10	9	0	3	6
SO_2	40	39	0	12	27
NO_x	40	39	0	23	16
CO	100	99	0	30	69
VOC	40	39	0	15	24
GHG (CO_2e)	75,000	74,000	0	27,480	46,520

TITLE V MAJOR SOURCE APPLICABILITY

14. A major source is a facility that has the potential to emit 100 tons/yr or more of any criteria pollutant or 10 tons/yr or more of any single HAP or 25 tons/yr or more of combined HAPs. This facility is not a major source of emissions. The basis for this determination can be found in the Detail Sheets attached to this Review Report.

ADDITIONAL REQUIREMENTS

NSPS APPLICABILITY

15. The New Source Performance Standards (NSPS) for boilers (Subparts D, Da, Db, and Dc) do not apply to the new boiler (unit ME-1902) because the rated design heat capacity for this boiler is 1.046 MMBtu/hr which is less than the minimum 10 MMBtu/hr regulated by these standards.

16. The permittee may either contract with a third party to operate a concrete crusher on-site or install its own concrete crusher. If a third party is used, they should have any applicable permits from DEQ. If the permittee decides to install and operate their own concrete crusher they may be subject to some additional regulations. The concrete crusher would not be subject to the NSPS for nonmetallic mineral processing plants (Subpart OOO) because concrete does not fit the definition of nonmetallic minerals (40 CFR 60.671).

17. A diesel engine may be used to power the concrete crushing operation or to provide backup power to the facility in case of emergencies. These engines would be subject to the NSPS for Stationary Compression Ignition Internal Combustion Engines (Subpart IIII). The engine supporting concrete crushing would be approximately 100 kW in size and have a displacement of less than 30 liters per cylinder. This engine must be certified to meet the emission standards applicable for the model year. [40 CFR 60.4204(b)]

    The emergency generator is rated at 600 bhp (447 kW) and must also be certified to meet the emission standards applicable for the model year. [40 CFR 60.4205(b)]

NESHAPS/MACT APPLICABILITY

18. The National Emission Standard for Hazardous Air Pollutants (NESHAP) for boilers at area sources of HAP emissions (Subpart JJJJJJ) does not apply to the new boiler (unit ME-1902) because gas-fired units (including propane gas) are exempt from this regulation. [40 CFR 63.11195(e)]

19. The NESHAP for Stationary Reciprocating Internal Combustion Engines (Subpart ZZZZ) is applicable to the emergency generator and concrete crusher engines. Both engines would be considered new (commenced construction after 6/12/2006). As new engines located at an area source of HAP emissions the NESHAP requirements are met by meeting the requirements of NSPS Subpart IIII. No further NESHAP requirements under Subpart ZZZZ are applicable. [40 CFR 63.6590(c)]

RACT APPLICABILITY

20. The RACT rules are not applicable to this source because it is not in the Portland AQMA, Medford AQMA, or Salem SKATS.

TACT APPLICABILITY

21. The source is meeting the states TACT/Highest and Best Rules by monitoring the temperature of the organic recovery unit and thermal oxidizer.

PUBLIC NOTICE

22. Pursuant to OAR 340-216-0064(4)(b)(A), a simple technical permit modification of a Simple Air Contaminant Discharge Permit requires no prior public notice or opportunity for participation in accordance with OAR 340-209-0030(3)(a). However, DEQ will maintain a list of all simple technical permit modifications and make the list available for public review.

DW:ww

ATTACHMENT A: DETAIL SHEETS

Particulate

Emission Point	Operating Parameters		Emission Factor			ton/yr
			Rate		Reference	
Stabilization	45,000	ton/yr	1.36E-04	lb/ton[a]	AP-42 Section 13.2.4	0.003
Solidification	12,000	ton/yr	0.120	lb/ton[b]	AP-42 Eq 11.12-1	0.72
Micro Encapsulation	2,500	ton/yr	0.143	lb/ton	Source Estimate	0.18
Macro Encapsulation	8,000	ton/yr	0.13	lb/ton	Source Estimate	0.52
Rock Crusher-Building B1	78,000	ton/yr	1.08E-04	lb/ton[c]	AP-42 Table 11.19.2-2	0.004
Building B4	15,000	ton/yr	9.24E-07	lb/ton[d]	AP-42 Section13.2.4	6.93E-06
Bioremediation/ORU Storage Building B5	438,000	ton/yr	1.02E-08	lb/ton[e]	AP-42 Section13.2.4	2.23E-06
Propane (ORU)	1,500	Mgal/yr	0.7	lb/Mgal	AP-42 Table 1.5-1	0.53
LFG (ORU)	245.46	MMdscf/yr[f]	9.35	lb/MMdscf	AP-42 Table 2.4-4	1.15
Thermal Oxidizer (TOU-1)	714	Mgal/yr	0.7	lb/MMdscf[g]	AP-42 Table 1.5-1	0.25
ORU Discharge (V-1503)	438,000	ton/yr	2.56E-07	lb/ton[h]	AP-42 Section 13.2.4	5.61E-05
ORU Boiler (ME-1902)	100.69	Mgal/yr	0.7	lb/Mgal	AP-42 Table 1.5-1	3.52E-02
Unpaved Roads	12,480	VMT/yr	1.31	lb/VMT[i]	AP-42 Section 13.2.2	8.2
Cover Soil	20,000	ton/yr	0.118	lb/ton[j]	AP-42 Section 11.9	1.2
Material Transfer-Offload	100,000	ton/yr	1.46E-04	lb/ton	AP-42 Section 13.2.4	0.007
Reagent Transfer	100,000	ton/yr	1.46E-04	lb/ton	AP-42 Section 13.2.4	0.007
Concrete Crushing	78,000	ton/yr	1.46E-03	lb/ton[k]	AP-42 Section 11.19.2	0.06
Generator	209,196	hp-hr/yr[l]	0.0022	lb/hp-hr	AP-42 Section 3.3	0.2
Waste Oil Heater	2,200	gal/yr	3.3	lb/Mgal	AP-42 Section 1.11-1	0.004
Propane Heater	1,400	gal/yr	0.7	lb/Mgal	AP-42 Section 1.5-1	0.0005
Total Particulate Emissions						**13.07**

a. Assumes 7 mph wind and 21% moisture
b. Assumes 7 mph wind and 60% moisture
c. Assumes baghouse control of 98%
d. Assumes 0.001 mph wind (inside building) and 0.2% moisture
e. Assumes 0.001 mph wind (inside building) and 5% moisture
f. 467 cfm of LFG flow for 8760 hr/yr, emission factor 17 lb/MMdscf methane, LFG is 55% methane
g. Assumes both fume and pilot emissions similar to propane emissions
h. Assumes 0.001 mph wind (inside building), 0.5% moisture, 98% control (BH)
i. Assumes 80% control of particulate due to watering
j. Combination of activities: bulldozing (AP-42 Table 11.9-1, 7% silt, 20% moisture, 32 ton/day, 10 hr/day)+scraper removing topsoil (AP-42 Table 11.9-4)+unload topsoil (AP-42 Table 11.9-4), 75% control
k. Combination of activities: controlled emissions for truck unload, transfer to crusher, tertiary crushing, and truck load
l. Assumes 100 kW (134.1 hp) diesel engine operating 1560 hr/yr.

PM_{10}

Emission Point	Operating Parameters		Emission Factor			ton/yr
			Rate		Reference	
Stabilization	45,000	ton/yr	6.45E-05	lb/ton[a]	AP-42 Section 13.2.4	0.001
Solidification	12,000	ton/yr	0.040	lb/ton[b]	AP-42 Eq 11.12-1	0.24
Micro Encapsulation	2,500	ton/yr	0.045	lb/ton	Source Estimate	0.06
Macro Encapsulation	8,000	ton/yr	0.0587	lb/ton	Source Estimate	0.23
Rock Crusher-Building B1	78,000	ton/yr	4.80E-05	lb/ton[c]	AP-42 Table 11.19.2-2	0.002
Building B4	15,000	ton/yr	4.37E-07	lb/ton[d]	AP-42 Section13.2.4	3.28E-06
Bioremediation/ORU storage Building B5	438,000	ton/yr	4.82E-09	lb/ton[e]	AP-42 Section13.2.4	1.06E-06
Propane (ORU)	1,500	Mgal/yr	0.7	lb/Mgal	AP-42 Table 1.5-1	0.53
LFG (ORU)	245.46	MMdscf/yr[f]	9.35	lb/MMdscf	AP-42 Table 2.4-5	1.15
Thermal Oxidizer (TOU-1)	714.223	Mgal/yr	0.7	lb/MMdscf[g]	AP-42 Table 1.5-1	0.25
ORU Discharge (V-1503)	438,000	ton/yr	2.42E-09	lb/ton[h]	AP-42 Section 13.2.4	5.31E-07
ORU Boiler (ME-1902)	100,690	gal/yr	0.7	lb/Mgal	AP-42 Table 1.5-1	3.52E-02
Unpaved Roads	12,480	VMT/yr	0.35	lb/VMT[i]	AP-42 Section 13.2.2	2.2
Cover Soil	20,000	ton/yr	0.095	lb/ton[j]	AP-42 Section 11.9	0.9
Material Transfer-Offload	100,000	ton/yr	6.91E-05	lb/ton	AP-42 Section 13.2.4	0.003
Reagent Transfer	100,000	ton/yr	6.91E-05	lb/ton	AP-42 Section 13.2.4	0.003
Concrete Crushing	78,000	ton/yr	7.02E-04	lb/ton[k]	AP-42 Section 11.19.2	0.03
Generator	209,196	hp-hr/yr[l]	0.0022	lb/hp-hr	AP-42 Section 3.3	0.2
Waste Oil Heater	2,200	gal/yr	2.85	lb/Mgal	AP-42 Section 1.11-1	3.14E-03
Propane Heater	1,400	gal/yr	0.7	lb/Mgal	AP-42 Section 1.5-1	4.90E-04
Total PM_{10} Emissions						**5.92**

a. Assumes 7 mph wind and 21% moisture
b. Assumes 7 mph wind and 60% moisture
c. Assumes baghouse control of 98%
d. Assumes 0.001 mph wind (inside building) and 0.2% moisture
e. Assumes 0.001 mph wind (inside building) and 5% moisture
f. 467 cfm of LFG flow for 8760 hr/yr, emission factor 17 lb/MMdscf methane, LFG is 55% methane
g. Assumes both fume and pilot emissions similar to propane emissions
h. Assumes 0.001 mph wind (inside building), 0.5% moisture, 98% control (BH)
i. Assumes 80% control of particulate due to watering
j. Combination of activities: bulldozing (AP-42 Table 11.9-1, 7% silt, 20% moisture, 32 ton/day, 10 hr/day)+scraper removing topsoil (AP-42 Table 11.9-4)+unload topsoil (AP-42 Table 11.9-4), 75% control
k. Combination of activities: controlled emissions for truck unload, transfer to crusher, tertiary crushing, and truck load
l. Assumes 100 kW (134.1 hp) diesel engine operating 1560 hr/yr.

$PM_{2.5}$

Emission Point	Operating Parameters		Emission Factor			ton/yr
			Rate		Reference	
Stabilization	45,000	ton/yr	9.77E-06	lb/ton[a]	AP-42 Section 13.2.4	0.0002
Solidification	12,000	ton/yr	1.29E-05	lb/ton[b]	AP-42 Eq 11.12-1	0.0001
Micro Encapsulation	2,500	ton/yr	0.00001	lb/ton	Source Estimate	1.25E-05
Macro Encapsulation	8,000	ton/yr	0.00001	lb/ton	Source Estimate	4.00E-05
Rock Crusher-Building B1	78,000	ton/yr	1.30E-05	lb/ton	AP-42 Table 11.19.2-2	0.001
Building B4	15,000	ton/yr	6.62E-08	lb/ton[c]	AP-42 Section13.2.4	4.96E-07
Bioremediation/ORU storage Building B5	438,000	ton/yr	7.31E-10	lb/ton[d]	AP-42 Section13.2.4	1.60E-07
Propane (ORU)	1,500	Mgal/yr	0.7	lb/Mgal	AP-42 Table 1.5-1	0.53
LFG (ORU)	245.46	MMdscf/yr[e]	9.35	lb/MMdscf	AP-42 Table 2.4-5	1.15
Thermal Oxidizer (TOU-1)	714.223	Mgal/yr	0.7	lb/MMdscf[f]	AP-42 Table 1.5-1	0.25
ORU Discharge (V-1503)	438,000	ton/yr	1.38E-09	lb/ton[g]	AP-42 Section 13.2.4	3.03E-07
ORU Boiler (ME-1902)	100,690	gal/yr	0.7	lb/Mgal	AP-42 Table 1.5-1	3.52E-02
Unpaved Roads	12,480	VMT/yr	0.04	lb/VMT[h]	AP-42 Section 13.2.2	0.2
Cover Soil	20,000	ton/yr	0.034	lb/ton[i]	AP-42 Section 11.9	0.3
Material Transfer-Offload	100,000	ton/yr	1.05E-05	lb/ton	AP-42 Section 13.2.4	0.001
Reagent Transfer	100,000	ton/yr	1.05E-05	lb/ton	AP-42 Section 13.2.4	0.001
Concrete Crushing	78,000	ton/yr	2.29E-04	lb/ton[j]	AP-42 Section 11.19.2	0.009
Generator	209,196	hp-hr/yr[k]	0.0022	lb/hp-hr	AP-42 Section 3.3	0.2
Waste Oil Heater	2,200	gal/yr	2.85	lb/Mgal	AP-42 Section 1.11-1	3.14E-03
Propane Heater	1,400	gal/yr	0.7	lb/Mgal	AP-42 Section 1.5-1	4.90E-04
Total $PM_{2.5}$ Emissions						**2.77**

a. Assumes 7 mph wind and 21% moisture
b. Assumes 7 mph wind and 60% moisture
c. Assumes 0.001 mph wind (inside building) and 0.2% moisture
d. Assumes 0.001 mph wind (inside building) and 5% moisture
e. 467 cfm of LFG flow for 8760 hr/yr, emission factor 17 lb/MMdscf methane, LFG is 55% methane
f. Assumes both fume and pilot emissions similar to propane emissions
g. Assumes 0.001 mph wind (inside building), 0.5% moisture, 98% control (BH)
h. Assumes 80% control of particulate due to watering
i. Combination of activities: bulldozing (AP-42 Table 11.9-1, 7% silt, 20% moisture, 32 ton/day, 10 hr/day)+scraper removing topsoil (AP-42 Table 11.9-4)+unload topsoil (AP-42 Table 11.9-4), 75% control
j. Combination of activities: controlled emissions for truck unload, transfer to crusher, tertiary crushing, and truck load
k. Assumes 100 kW (134.1 hp) diesel engine operating 1560 hr/yr.

SO_2

Emission Point	Operating Parameters		Emission Factor			ton/yr
			Rate		Reference	
Propane (ORU)	1,500	Mgal/yr	11.22	lb/Mgal[a]	AP-42 Section 1.5	8.41
LFG (ORU)	245.46	MMdscf/yr	49.9	lb/MMdscf[b]	Source Estimate	6.12
Thermal Oxidizer (TOU-1)	714.223	Mgal/yr	11.22	lb/Mgal[a]	AP-42 Table 1.5-1	4.01
ORU Boiler (ME-1902)	100,690	gal/yr	11.22	lb/Mgal[a]	AP-42 Table 1.5-1	0.56
Crusher Generator	209,196	hp-hr/yr[c]	2.05E-03	lb/hp-hr	AP-42 Section 3.3	0.2
Waste Oil Heater	2,200	gal/yr	214	lb/Mgal[d]	AP-42 Section 1.11-2	0.24
Propane Heater	1,400	gal/yr	0.01	lb/Mgal[e]	AP-42 Section 1.5-1	7.00E-06
Total SO_2 Emissions						**19.56**

a. Assumes 15 grains sulfur/100 gallons
b. Assumes 300 ppmv sulfur content of LFG
c. Assumes 100 kW (134.1 hp) diesel engine operating 1560 hr/yr
d. Assumes 2% sulfur
e. Assumes 0.1 grain sulfur per 100 cf of gas

NO_x

Emission Point	Operating Parameters		Emission Factor			ton/yr
			Rate		Reference	
Propane (ORU)	1,500	Mgal/yr	13	lb/Mgal	AP-42 Table 1.5-1	9.75
LFG (ORU)	245.46	MMdscf/yr	37.4	lb/MMdscf	AP-42 Table 13.5-1	4.59
Thermal Oxidizer (TOU-1)	714.223	Mgal/yr	13	lb/MMdscf	AP-42 Table 1.5-1	4.64
ORU Boiler (ME-1902)	100,690	gal/yr	13	lb/Mgal	AP-42 Table 1.5-1	0.65
Crusher Generator	209,196	hp-hr/yr	0.031	lb/hp-hr	AP-42 Section 3.3	3.2
Waste Oil Heater	2,200	gal/yr	16	lb/Mgal	AP-42 Section 1.11-2	0.02
Propane Heater	1,400	gal/yr	13	lb/Mgal	AP-42 Section 1.5-1	0.01
Total NO_x Emissions						**22.9**

CO

Emission Point	Operating Parameters		Emission Factor			ton/yr
			Rate		Reference	
Propane (ORU)	1,500	Mgal/yr	7.5	lb/Mgal	AP-42 Table 1.5-1	5.63
LFG (ORU)	245.46	MMdscf/yr	170.5	lb/MMdscf	AP-42 Table 13.5-2	20.93
Thermal Oxidizer (TOU-1)	714.223	Mgal/yr	7.5	lb/MMdscf	AP-42 Table 1.5-1	2.68
ORU Boiler (ME-1902)	100,690	gal/yr	7.5	lb/Mgal	AP-42 Table 1.5-1	0.38
Crusher Generator	209,196	hp-hr/yr	6.68E-03	lb/hp-hr	AP-42 Section 3.3	0.7
Waste Oil Heater	2,200	gal/yr	2.1	lb/Mgal	AP-42 Section 1.11-2	0.002
Propane Heater	1,400	gal/yr	7.5	lb/Mgal	AP-42 Section 1.5-1	5.25E-03
Total CO Emissions						**30.3**

VOC

Emission Point	Operating Parameters		Emission Factor			ton/yr
			Rate		Reference	
Bioremediation/ORU storage Building B5	438,000	ton/yr			Ch Waste Model	4.46
Propane (ORU)	1,500	Mgal/yr	0.8	lb/Mgal	AP-42 Table 1.5-1	0.60
LFG (ORU)	245.46	MMdscf/yr	77	lb/MMdscf	AP-42 Table 13.5-1	9.45
Thermal Oxidizer (TOU-1)	714.223	Mgal/yr	1.0	lb/MMdscf	AP-42 Table 1.5-1	0.36
ORU Boiler (ME-1902)	100,690	gal/yr	1	lb/Mgal	AP-42 Table 1.5-1	0.05
Crusher Generator	209,196	hp-hr/yr	2.47E-03	lb/hp-hr	AP-42 Section 3.3	0.3
Waste Oil Heater	2,200	gal/yr	1.0	lb/Mgal	AP-42 Section 1.11-3	1.10E-03
Propane Heater	1,400	gal/yr	1.0	lb/Mgal	AP-42 Section 1.5-1	7.00E-04
Vehicle Fueling/Storage	27,312	gal/yr			EPA Tanks	0.03
ORUTNK1	6,300,000	gal/yr			EPA Tanks	0.006
ORUTNK2	6,300,000	gal/yr			EPA Tanks	0.006
Total VOC Emissions						**15.2**

Greenhouse Gas (GHG)

Emission Point	Operating Parameters		Emission Factor			ton/yr
			Rate		Reference	
Propane (ORU) CO_2	1,500	Mgal/yr	12,613	lb/Mgal	40 CFR 98 Table C-1	9,460
CH_4 (CO_2e)			15.0	lb/Mgal	40 CFR 98 Table C-2	11
N_2O (CO_2e)			35.88	lb/Mgal	40 CFR 98 Table C-2	27
LFG (ORU) CO_2	245.46	MMdscf/yr	103592.8	lb/MMdscf	40 CFR 98, LANDGEM	12,714
CH_4 (CO_2e)			81.6	lb/MMdscf	40 CFR 98, Table C-2	10
N2O (CO2e)			191.4	lb/MMdscf	40 CFR 98, Table C-2	23
Thermal Ox (TOU-1) CO_2	714.223	Mgal/yr	12613	lb/Mgal	40 CFR 98 Table C-1	4,504
CH_4 (CO_2e)			15.0	lb/Mgal	40 CFR 98 Table C-2	5
N_2O (CO_2e)			35.88	lb/Mgal	40 CFR 98 Table C-2	13
ORU Boiler (ME-1902) CO_2	100,690	gal/yr	12,613	lb/Mgal	40 CFR 98 Table C-1	635
CH_4 (CO_2e)			15.0	lb/Mgal	40 CFR 98 Table C-2	0.8
N_2O (CO_2e)			35.88	lb/Mgal	40 CFR 98 Table C-2	1.8
Crusher Generator CO_2	209,196	hp-hr/yr	0.41	lb/hp-hr	40 CFR 98 Table C-1	43
CH_4 (CO_2e)			4.20E-04	lb/hp-hr	40 CFR 98 Table C-2	0.04
N_2O (CO_2e)			1.00E-03	lb/hp-hr	40 CFR 98 Table C-2	0.10
Waste Oil Heater CO_2	2,200	gal/yr	22,513	lb/Mgal	40 CFR 98 Table C-1	25
CH_4 (CO_2e)			23	lb/Mgal	40 CFR 98 Table C-2	0.03
N_2O (CO_2e)			54	lb/Mgal	40 CFR 98 Table C-2	0.06
Propane Heater CO_2	1,400	gal/yr	12,613	lb/Mgal	40 CFR 98 Table C-1	8.8
CH_4 (CO_2e)			15.0	lb/Mgal	40 CFR 98 Table C-2	0.01
N_2O (CO_2e)			35.88	lb/Mgal	40 CFR 98 Table C-2	0.03
Total GHG Emissions						**27,482**

Hazardous Air Pollutants

Compound/Emission Point	Operating Parameters		Emission Factor			Emissions ton/yr
			Rate		Reference	
1,1,2,2-Tetrachloroethane						
ORU LFG	245.5	MMscf/yr	2.15E-03	lb/MMscf	Engineering Estimate	**2.64E-04**
1,1,1-Trichloroethane						
ORU LFG	245.5	MMscf/yr	3.12E-04	lb/MMscf	Engineering Estimate	**3.83E-05**
1,1,2-Trichloroethane						
Waste Handling/Inspection	629	ton/yr	4.96	lb/ton	Engineering Estimate	1.56
Landfill	1,258,172	lb/yr	0.00274	lb/ton	Engineering Estimate	8.62E-04
Macro Encapsulation	599,024	lb/yr	7.68E-03	lb/ton	Engineering Estimate	1.15E-03
Stabilization	652,380	lb/yr	2.32E-05	lb/ton	Engineering Estimate	3.78E-06
Solidification	10,120	lb/yr	6.76E-05	lb/ton	Engineering Estimate	1.71E-07
Bioremediation	24,440	lb/yr	2.59E-02	lb/ton	Engineering Estimate	1.58E-04
Total						**1.56**
1,2,4-Trichlorobenzene						-
Waste Handling/Inspection	99,480	lb/yr	1.500E-04	lb/ton	Engineering Estimate	3.73E-06
Landfill	99,480	lb/yr	2.700E-06	lb/ton	Engineering Estimate	6.71E-08
Total						**3.8E-06**
1,4-Dichlorobenzene						-
Waste Handling/Inspection	202,000	lb/yr	0.000122	lb/ton	Engineering Estimate	6.16E-06
Macro Encapsulation	518,240	lb/yr	0.00918	lb/ton	Engineering Estimate	1.19E-03
Bioremediation	87,120	lb/yr	0.0134	lb/ton	Engineering Estimate	2.92E-04
Total						**1.5E-03**
1,1-Dichloroethane						
ORU LFG	245.5	MMscf/yr	1.10E-03	lb/MMscf	Engineering Estimate	**1.35E-04**
1,2-Dichloroethane						
ORU LFG	245.5	MMscf/yr	6.07E-03	lb/MMscf	Engineering Estimate	**7.44E-04**
1,1-Dichloroethene						
ORU LFG	245.5	MMscf/yr	2.27E-04	lb/MMscf	Engineering Estimate	**2.78E-05**
1,2-Dichloropropane						
ORU LFG	245.5	MMscf/yr	2.64E-04	lb/MMscf	Engineering Estimate	**3.25E-05**
7,12-Dimethylbenz(a)anthr						
ORU Boiler	100,690	gal/yr	4.450E-04	lb/Mgal	AP-42 Table 1.4-3	**2.24E-05**
1,3-Butadiene						
Thermal Oxidizer (TOU-1)	20.5	MMscf/yr	32.46	lb/MMscf	Engineering Estimate	0.33
Concrete Crush Engines	7,941	MMBtu/yr	3.91E-05	lb/MMBtu	AP-42 Table 3.3-2	1.55E-04
Total						**0.33**
1,4-Dioxane						
Macro Encapsulation	1,332,262	lb/yr	2.550E-04	lb/ton	Engineering Estimate	**8.49E-05**
3-Methylchloranthrene						
ORU Boiler	100,690	gal/yr	5.000E-05	lb/Mgal	AP-42 Table 1.4-3	**2.52E-06**
2-Methylnaphthalene						
ORU Boiler	100,690	gal/yr	6.670E-04	lb/Mgal	AP-42 Table 1.4-3	**3.36E-05**
2-Nitropropane						
Waste Handling/Inspection	280,292	lb/yr	0.007	lb/ton	Engineering Estimate	5.25E-04
Landfill	20,200	lb/yr	0.103	lb/ton	Engineering Estimate	5.20E-04
Macro Encapsulation	226,576	lb/yr	0.00148	lb/ton	Engineering Estimate	8.38E-05

Compound/Emission Point	Operating Parameters		Emission Factor			Emissions ton/yr
			Rate		Reference	
Stabilization	1,320	lb/yr	10.5	lb/ton	Engineering Estimate	3.47E-03
Total						**4.6E-03**
2,4-Dinitrotoluene						
Macro Encapsulation	511,200	lb/yr	0.00761	lb/ton	Engineering Estimate	**9.73E-04**
2,4,5 Trichlorophenol						
Macro Encapsulation	797,692	lb/yr	0.000426	lb/ton	Engineering Estimate	**8.50E-05**
Acetaldehyde						
Concrete Crush Engines	7,941	MMBtu/yr	7.67E-04	lb/MMBtu	AP-42 Table 3.3-2	**3.05E-03**
Acenaphthene						
ORU Boiler	100,690	gal/yr	5.000E-05	lb/Mgal	AP-42 Table 1.4-3	**2.52E-06**
Acetonitrile						
Macro Encapsulation	1,335,002	lb/yr	0.0000572	lb/ton	Engineering Estimate	**1.91E-05**
Acrolein						
Concrete Crush Engines	7,941	MMBtu/yr	9.25E-05	lb/MMBtu	AP-42 Table 3.3-2	**3.67E-04**
Acrylonitrile						
ORU LFG	245.5	MMscf/yr	1.06E-04	lb/MMscf	Engineering Estimate	**1.31E-05**
Anthracene						
ORU Boiler	100,690	gal/yr	6.670E-05	lb/Mgal	AP-42 Table 1.4-3	**3.36E-06**
Antimony						
Waste Oil Heater	2,200	gal/yr	0.0045	lb/Mgal	AP-42 Sec 1.11	**4.95E-06**
Arsenic						
Waste Oil Heater	2,200	gal/yr	0.06	lb/Mgal	AP-42 Sec 1.11	6.60E-05
Propane Space Heater	1,400	gal/yr	0.00013	lb/Mgal	CATEF	9.10E-08
Total						**6.61E-05**
Asbestos						
Macro Encapsulation	40,610	lb/yr	0.0575	lb/ton	Engineering Estimate	**5.84E-04**
Benz(a)anthracene						
ORU Boiler	100,690	gal/yr	5.00E-05	lb/Mgal	AP-42 Table 1.4-3	**2.52E-06**
Benzene						
Thermal Oxidizer (TOU-1)	20.5	MMscf/yr	18.98	lb/MMscf	Engineering Estimate	0.19
ORU LFG	245.5	MMscf/yr	7.40E-03	lb/MMscf	Engineering Estimate	9.08E-04
ORU Propane	0.2	MM scf/yr	2.10E-03	lb/MM sf	Engineering Estimate	2.10E-07
ORU Boiler	100,690	gal/yr	5.84E-02	lb/Mgal	AP-42 Table 1.4-3	2.94E-03
Concrete Crush Engines	7,941	MMBtu/yr	9.33E-04	lb/MMBtu	AP-42 Table 3.3-2	3.70E-03
Waste Handling/Inspection	1,251,332	lb/yr	0.0000284	lb/ton	Engineering Estimate	8.88E-06
Landfill	1,251,332	lb/yr	0.00011	lb/ton	Engineering Estimate	3.44E-05
Macro Encapsulation	2,233,411	lb/yr	0.00188	lb/ton	Engineering Estimate	1.05E-03
Stabilization	652,380	lb/yr	0.0000742	lb/ton	Engineering Estimate	1.21E-05
Gas Tank	9,927	gal/yr	0.77	% VOC	AP-42 Sec 7.1	2.68E-04
Bioremediation	2,440	lb/yr	0.0259	lb/ton	Engineering Estimate	1.58E-05
Bioremediation	62,060	lb/yr	0.0148	lb/ton	Engineering Estimate	2.30E-04
Bioremediation	257,480	lb/yr	0.0132	lb/ton	Engineering Estimate	8.50E-04
Bioremediation	440	lb/yr	1.98	lb/ton	Engineering Estimate	2.18E-04
Total						**0.20**
Benzo(a)pyrene						
ORU Boiler	100,690	gal/yr	3.34E-05	lb/Mgal	AP-42 Table 1.4-3	**1.68E-06**

Compound/Emission Point	Operating Parameters		Emission Factor			Emissions ton/yr
			Rate		Reference	
Benzo(b)fluoranthene						
ORU Boiler	100,690	gal/yr	5.00E-05	lb/Mgal	AP-42 Table 1.4-3	**2.52E-06**
Benzo(g,h,i)perylene						
ORU Boiler	100,690	gal/yr	3.34E-05	lb/Mgal	AP-42 Table 1.4-3	**1.68E-06**
Benzo(k)fluoranthene						
ORU Boiler	100,690	gal/yr	5.00E-05	lb/Mgal	AP-42 Table 1.4-3	**2.52E-06**
Beryllium						
Waste Oil Heater	2,200	gal/yr	0.0018	lb/Mgal	AP-42 Sec 1.11	1.98E-06
Propane Space Heater	1,400	gal/yr	0.00003	lb/Mgal	CATEF	2.10E-08
Total						**2.00E-06**
Cadmium						
Waste Oil Heater	2,200	gal/yr	0.012	lb/Mgal	AP-42 Sec 1.11	1.32E-05
Propane Space Heater	1,400	gal/yr	0.00006	lb/Mgal	CATEF	4.20E-08
Total						**1.32E-05**
Carbon Disulfide						
Thermal Oxidizer (TOU-1)	20.5	MMscf/yr	0.95	lb/MMscf	Engineering Estimate	0.01
ORU LFG	245.5	MMscf/yr	8.91E-04	lb/MMscf	Engineering Estimate	1.09E-04
Waste Handling/Inspection	927,392	lb/yr	0.0000199	lb/ton	Engineering Estimate	4.61E-06
Landfill	927,392	lb/yr	0.000282	lb/ton	Engineering Estimate	6.54E-05
Macro Encapsulation	226,550	lb/yr	0.000141	lb/ton	Engineering Estimate	7.99E-06
Stabilization	648,420	lb/yr	0.0000105	lb/ton	Engineering Estimate	1.70E-06
Bioremediation	24,440	lb/yr	0.0259	lb/ton	Engineering Estimate	1.58E-04
Total						**1.01E-02**
Carbon Tetrachloride						
ORU LFG	245.5	MMscf/yr	3.60E-04	lb/MMscf	Engineering Estimate	4.42E-05
Waste Handling/Inspection	980,272	lb/yr	0.0000189	lb/ton	Engineering Estimate	4.63E-06
Landfill	980,272	lb/yr	0.000122	lb/ton	Engineering Estimate	2.99E-05
Macro Encapsulation	743,516	lb/yr	0.00516	lb/ton	Engineering Estimate	9.59E-04
Stabilization	2,640	lb/yr	0.00105	lb/ton	Engineering Estimate	6.93E-07
Bioremediation	24,440	lb/yr	0.0259	lb/ton	Engineering Estimate	1.58E-04
Total						**1.20E-03**
Carbonyl Sulfide						
ORU LFG	245.5	MMscf/yr	6.70E-04	lb/MMscf	Engineering Estimate	**8.22E-05**
Chlordane						
Macro Encapsulation	552,588	lb/yr	0.00694	lb/ton	Engineering Estimate	**9.59E-04**
Chlorobenzene						
ORU LFG	245.5	MMscf/yr	2.63E-04	lb/MMscf	Engineering Estimate	3.23E-05
Waste Handling/Inspection	10,013,702	lb/yr	0.000234	lb/ton	Engineering Estimate	5.86E-04
Landfill	10,013,702	lb/yr	0.000137	lb/ton	Engineering Estimate	3.43E-04
Macro Encapsulation	752,616	lb/yr	0.00523	lb/ton	Engineering Estimate	9.84E-04
Stabilization	652,380	lb/yr	0.0000487	lb/ton	Engineering Estimate	7.94E-06
Solidification	9,240	lb/yr	0.0315	lb/ton	Engineering Estimate	7.28E-05
Bioremediation	24,440	lb/yr	0.00259	lb/ton	Engineering Estimate	1.58E-05
Total						**2.04E-03**
Chloroform						
ORU LFG	245.5	MMscf/yr	2.79E-04	lb/MMscf	Engineering Estimate	**3.43E-05**

Compound/Emission Point	Operating Parameters		Emission Factor			Emissions ton/yr
			Rate		Reference	
Waste Handling/Inspection	5,280	lb/yr	0.00000001	lb/ton	Engineering Estimate	1.32E-11
Landfill	5,280	lb/yr	0.00000006	lb/ton	Engineering Estimate	7.92E-11
Macro Encapsulation	511,200	lb/yr	0.0075	lb/ton	Engineering Estimate	9.59E-04
Total						**9.93E-04**
Chromium						
Waste Oil Heater	2,200	gal/yr	0.18	lb/Mgal	Engineering Estimate	**1.98E-04**
Chrysene						
ORU Boiler	100,690	gal/yr	5.00E-05	lb/Mgal	AP-42 Table 1.4-3	**2.52E-06**
Cobalt						
Waste Oil Heater	2,200	gal/yr	0.0052	lb/Mgal	Engineering Estimate	**5.72E-06**
Copper						
Propane Space Heater	1,400	gal/yr	0.00031	lb/Mgal	Engineering Estimate	**2.17E-07**
Cresol						
Waste Handling/Inspection	854,796	lb/yr	0.00000457	lb/ton	Engineering Estimate	9.77E-07
Landfill	840,876	lb/yr	0.00000003	lb/ton	Engineering Estimate	6.31E-09
Macro Encapsulation	2,751,996	lb/yr	0.00397	lb/ton	Engineering Estimate	2.73E-03
Stabilization	3,960	lb/yr	0.00582	lb/ton	Engineering Estimate	5.76E-06
Bioremediation	24,440	lb/yr	0.0259	lb/ton	Engineering Estimate	1.58E-04
Total						**2.90E-03**
Cyanide compounds						
Waste Handling/Inspection	12,320	lb/yr	0.0838	lb/ton	Engineering Estimate	2.58E-04
Landfill	12,320	lb/yr	1.27	lb/ton	Engineering Estimate	3.91E-03
Macro Encapsulation	4,980	lb/yr	0.000308	lb/ton	Engineering Estimate	3.83E-07
Leachate	489,840	lb/yr	0.0417	lb/ton	Engineering Estimate	5.11E-03
Total						**9.28E-03**
Dibenzo(a,h)anthracene						
ORU Boiler	100,690	gal/yr	3.34E-05	lb/Mgal	AP-42 Table 1.4-3	**1.68E-06**
Dibutylphthalate						
Macro Encapsulation	1,284,132	lb/yr	0.0000421	lb/ton	Engineering Estimate	**1.35E-05**
Dichlorobenzene						
ORU LFG	245.5	MMscf/yr	1.23E-03	lb/MMscf	Engineering Estimate	1.51E-04
ORU Propane	0.2	MM scf/yr	1.20E-03	lb/MM sf	Engineering Estimate	1.20E-07
ORU Boiler	100,690	gal/yr	3.34E-02	lb/Mgal	AP-42 Table 1.4-3	1.68E-03
Total						**1.83E-03**
Dimethyl Sulfate						
Waste Handling/Inspection	680	lb/yr	0.0375	lb/ton	Engineering Estimate	6.38E-06
Landfill	680	lb/yr	0.000285	lb/ton	Engineering Estimate	4.85E-08
Stabilization	680	lb/yr	52.5	lb/ton	Engineering Estimate	8.93E-03
Total						**8.93E-03**
Epichlorohydrin						
Waste Handling/Inspection	37,120	lb/yr	0.00327	lb/ton	Engineering Estimate	3.03E-05
Landfill	37,120	lb/yr	0.00167	lb/ton	Engineering Estimate	1.55E-05
Solidification	880	lb/yr	21	lb/ton	Engineering Estimate	4.62E-03
Total						**4.67E-03**
Ethyl Benzene						
Thermal Oxidizer (TOU-1)	20.5	MMscf/yr	0.97	lb/MMscf	Engineering Estimate	0.01

Compound/Emission Point	Operating Parameters		Emission Factor			Emissions ton/yr
			Rate		Reference	
ORU LFG	245.5	MMscf/yr	3.96E-02	lb/MMscf	Engineering Estimate	4.86E-03
Waste Handling/Inspection	1,493,160	lb/yr	0.0000199	lb/ton	Engineering Estimate	7.43E-06
Landfill	1,493,160	lb/yr	0.00000881	lb/ton	Engineering Estimate	3.29E-06
Macro Encapsulation	1,705,445	lb/yr	0.000955	lb/ton	Engineering Estimate	4.07E-04
Stabilization	649,300	lb/yr	0.0000122	lb/ton	Engineering Estimate	1.98E-06
Solidification	10,120	lb/yr	0.192	lb/ton	Engineering Estimate	4.86E-04
Gas Tank	9,927	gal/yr	0.04	% VOC	AP-42 Sec 7.1	1.39E-05
Bioremediation	24,440	lb/yr	0.0259	lb/ton	Engineering Estimate	1.58E-04
Bioremediation	62,060	lb/yr	0.0148	lb/ton	Engineering Estimate	2.30E-04
Bioremediation	440	lb/yr	1.98	lb/ton	Engineering Estimate	2.18E-04
Total						**1.64E-02**
Ethyl Carbamate						
Macro Encapsulation	494	lb/yr	0.000151	lb/ton	Engineering Estimate	**1.86E-08**
Ethyl Chloride						
ORU LFG	245.5	MMscf/yr	1.33E-03	lb/MMscf	Engineering Estimate	1.63E-04
Waste Handling/Inspection	9,240	lb/yr	0.00015	lb/ton	Engineering Estimate	3.47E-07
Landfill	9,240	lb/yr	0.00402	lb/ton	Engineering Estimate	9.29E-06
Solidification	9,240	lb/yr	0.21	lb/ton	Engineering Estimate	4.85E-04
Total						**6.58E-04**
Ethylene Dibromide						
ORU LFG	245.5	MMscf/yr	4.40E-04	lb/MMscf	Engineering Estimate	5.40E-05
Waste Handling/Inspection	99,480	lb/yr	0.00015	lb/ton	Engineering Estimate	3.73E-06
Total						**5.77E-05**
Ethyl Dichloride						
Waste Handling/Inspection	4,797,690	lb/yr	0.0000002	lb/ton	Engineering Estimate	2.40E-07
Landfill	4,797,690	lb/yr	0.00000373	lb/ton	Engineering Estimate	4.47E-06
Total						**4.71E-06**
Ethylene Dichloride						
Macro Encapsulation	519,280	lb/yr	0.00751	lb/ton	Engineering Estimate	**9.75E-04**
Fluoranthene						
ORU Boiler	100,690	gal/yr	8.34E-05	lb/Mgal	AP-42 Table 1.4-3	**4.20E-06**
Fluorene						
ORU Boiler	100,690	gal/yr	7.78E-05	lb/Mgal	AP-42 Table 1.4-3	**3.92E-06**
Formaldehyde						
ORU Propane	0.2	MM scf/yr	7.50E-02	lb/MM sf	Engineering Estimate	7.50E-06
ORU Boiler	100,690	gal/yr	2.09E+00	lb/Mgal	AP-42 Table 1.4-3	1.05E-01
Concrete Crush Engines	7,941	MMBtu/yr	1.18E-03	lb/MMBtu	AP-42 Table 3.3-2	4.69E-03
Waste Handling/Inspection	68,626	lb/yr	0.0107	lb/ton	Engineering Estimate	1.84E-04
Landfill	68,626	lb/yr	0.629	lb/ton	Engineering Estimate	1.08E-02
Macro Encapsulation	513,908	lb/yr	0.0075	lb/ton	Engineering Estimate	9.64E-04
Solidification	41,556	lb/yr	20.8	lb/ton	Engineering Estimate	2.16E-01
Total						**0.34**
Heptachlor						
Macro Encapsulation	526,228	lb/yr	0.00729	lb/ton	Engineering Estimate	**9.59E-04**
Hexachlorobenzene						
Macro Encapsulation	511,200	lb/yr	0.00751	lb/ton	Engineering Estimate	**9.60E-04**

Compound/Emission Point	Operating Parameters		Emission Factor			Emissions ton/yr
			Rate		Reference	
Hexachlorocyclopentadiene						
Macro Encapsulation	511,200	lb/yr	0.0075	lb/ton	Engineering Estimate	**9.59E-04**
Hexachloroethane						
Macro Encapsulation	528,530	lb/yr	0.00728	lb/ton	Engineering Estimate	**9.62E-04**
Hexane						
Thermal Oxidizer (TOU-1)	20.5	MMscf/yr	1.32	lb/MMscf	Engineering Estimate	0.01
ORU LFG	245.5	MMscf/yr	1.12E-02	lb/MMscf	Engineering Estimate	1.37E-03
ORU Propane	0.2	MM scf/yr	1.80	lb/MM sf	Engineering Estimate	1.80E-04
ORU Boiler	100,690	gal/yr	5.00E+01	lb/Mgal	AP-42 Table 1.4-3	2.52E+00
Gas Tank	9,927	gal/yr	1.84	% VOC	Engineering Estimate	6.40E-04
Total						**2.53**
Hydrochloric Acid						
ORU LFG	245.5	MMscf/yr	9.55E-02	lb/MMscf	Engineering Estimate	1.17E-02
Waste Handling/Inspection	1,509,560	lb/yr	0.0384	lb/ton	Engineering Estimate	1.45E-02
Landfill	1,509,560	lb/yr	0.164	lb/ton	Engineering Estimate	6.19E-02
Macro Encapsulation	17,900	lb/yr	0.206	lb/ton	Engineering Estimate	9.22E-04
Stabilization	49,060	lb/yr	249	lb/ton	Engineering Estimate	3.05
Solidification	440	lb/yr	1150	lb/ton	Engineering Estimate	1.27E-01
Total						**3.27**
Hydrogen Fluoride						
Waste Handling/Inspection	2,332,660	lb/yr	0.0242	lb/ton	Engineering Estimate	1.41E-02
Landfill	2,332,660	lb/yr	0.454	lb/ton	Engineering Estimate	2.65E-01
Macro Encapsulation	3,640	lb/yr	0.0226	lb/ton	Engineering Estimate	2.06E-05
Stabilization	650,620	lb/yr	0.109	lb/ton	Engineering Estimate	1.77E-02
Solidification	440	lb/yr	10.5	lb/ton	Engineering Estimate	1.16E-03
Total						**2.98E-01**
Indeno(1,2,3-cd)pyrene						
ORU Boiler	100,690	gal/yr	5.00E-05	lb/Mgal	AP-42 Table 1.4-3	**2.52E-06**
Lead						
Leachate	849,840	lb/yr	0.00162	lb/ton	Engineering Estimate	3.44E-04
Waste Oil Heater	2,200	gal/yr	0.025	lb/Mgal	Engineering Estimate	2.75E-05
Propane Space Heater	1,400	gal/yr	0.00051	lb/Mgal	Engineering Estimate	3.57E-07
Total						**3.72E-04**
Lindane						
Waste Handling/Inspection	2,640	lb/yr	0.0376	lb/ton	Engineering Estimate	2.48E-05
Landfill	2,640	lb/yr	0.00000004	lb/ton	Engineering Estimate	2.64E-11
Macro Encapsulation	545,548	lb/yr	0.00703	lb/ton	Engineering Estimate	9.59E-04
Stabilization	2,640	lb/yr	52.6	lb/ton	Engineering Estimate	3.47E-02
Total						**3.57E-02**
Manganese						
Waste Oil Heater	2,200	gal/yr	0.05	lb/Mgal	AP-42 Sec 1.11	5.50E-05
Propane Space Heater	1,400	gal/yr	0.00131	lb/Mgal	CATEF	9.17E-07
Total						**5.59E-05**
Methanol						
Macro Encapsulation	1,555,478	lb/yr	0.00109	lb/ton	Engineering Estimate	4.24E-04
Solidification	43,933	lb/yr	134	lb/ton	Engineering Estimate	1.47E+00

Compound/Emission Point	Operating Parameters		Emission Factor			Emissions ton/yr
			Rate		Reference	
Bioremediation	24,440	lb/yr	0.0259	lb/ton	Engineering Estimate	1.58E-04
Total						**1.47E+00**
Methoxychlor						
Macro Encapsulation	512,960	lb/yr	0.00748	lb/ton	Engineering Estimate	**9.59E-04**
Methyl Bromide						
Waste Handling/Inspection	513,908	lb/yr	0.00751	lb/ton	Engineering Estimate	9.65E-04
Stabilization	513,908	lb/yr	10.5	lb/ton	Engineering Estimate	1.35E+00
Total						**1.35E+00**
MIBK						
ORU LFG	245.5	MMscf/yr	1.45E-02	lb/MMscf	Engineering Estimate	1.78E-03
Waste Handling/Inspection	1,465,072	lb/yr	0.0224	lb/ton	Engineering Estimate	8.20E-03
Macro Encapsulation	1,708,303	lb/yr	0.0209	lb/ton	Engineering Estimate	8.93E-03
Stabilization	648,420	lb/yr	0.0691	lb/ton	Engineering Estimate	1.12E-02
Bioremediation	24,440	lb/yr	0.0259	lb/ton	Engineering Estimate	1.58E-04
Bioremediation	21,580	lb/yr	0.0334	lb/ton	Engineering Estimate	1.80E-04
Total						**3.05E-02**
Methyl Methacrylate						
Macro Encapsulation	1,332,562	lb/yr	0.00024	lb/ton	Engineering Estimate	**8.00E-05**
Methyl Chloride						
Thermal Oxidizer (TOU-1)	20.5	MMscf/yr	0.42	lb/MMscf	Engineering Estimate	0.004
ORU LFG	245.5	MMscf/yr	2.36E-04	lb/MMscf	Engineering Estimate	2.90E-05
Total						**4.38E-03**
Methylene Chloride						
Thermal Oxidizer (TOU-1)	20.5	MMscf/yr	0.62	lb/MMscf	Engineering Estimate	0.006
ORU LFG	245.5	MMscf/yr	5.21E-03	lb/MMscf	Engineering Estimate	6.39E-04
Waste Handling/Inspection	1,230,295	lb/yr	0.00016	lb/ton	Engineering Estimate	4.92E-05
Macro Encapsulation	1,671,007	lb/yr	0.0275	lb/ton	Engineering Estimate	1.15E-02
Stabilization	648,420	lb/yr	0.0000126	lb/ton	Engineering Estimate	2.04E-06
Solidification	11,880	lb/yr	0.171	lb/ton	Engineering Estimate	5.08E-04
Bioremediation	24,440	lb/yr	0.0259	lb/ton	Engineering Estimate	1.58E-04
Total						**1.92E-02**
Naphthalene						
ORU Propane	0.2	MM scf/yr	6.10E-04	lb/MM sf	Engineering Estimate	6.10E-08
ORU Boiler	100,690	gal/yr	1.70E-02	lb/Mgal	AP-42 Table 1.4-3	8.56E-04
Concrete Crush Engines	7,941	MMBtu/yr	8.48E-05	lb/MMBtu	AP-42 Table 3.3-2	3.37E-04
Waste Handling/Inspection	657,880	lb/yr	0.00144	lb/ton	Engineering Estimate	2.37E-04
Macro Encapsulation	33,240	lb/yr	0.0000682	lb/ton	Engineering Estimate	5.67E-07
Solidification	5,960	lb/yr	63	lb/ton	Engineering Estimate	9.39E-02
Bioremediation	72,160	lb/yr	0.00125	lb/ton	Engineering Estimate	2.26E-05
Bioremediation	62,060	lb/yr	0.0148	lb/ton	Engineering Estimate	2.30E-04
Total						**9.56E-02**
Nickel						
Waste Oil Heater	2,200	gal/yr	0.16	lb/Mgal	AP-42 Sec 1.11	1.76E-04
Propane Space Heater	1,400	gal/yr	0.00208	lb/Mgal	CATEF	1.46E-06
Total						**1.77E-04**
Nitrobenzene						

Compound/Emission Point	Operating Parameters		Emission Factor			Emissions ton/yr
			Rate		Reference	
Waste Handling/Inspection	284,662	lb/yr	0.0000753	lb/ton	Engineering Estimate	5.36E-06
Macro Encapsulation	737,758	lb/yr	0.0052	lb/ton	Engineering Estimate	9.59E-04
Stabilization	1,320	lb/yr	0.00421	lb/ton	Engineering Estimate	1.39E-06
Bioremediation	24,440	lb/yr	0.0259	lb/ton	Engineering Estimate	1.58E-04
Total						**1.12E-03**
Pentachlorophenol						
Macro Encapsulation	803,852	lb/yr	0.00513	lb/ton	Engineering Estimate	1.03E-03
Bioremediation	72,160	lb/yr	0.00125	lb/ton	Engineering Estimate	2.26E-05
Bioremediation	77,800	lb/yr	0.00116	lb/ton	Engineering Estimate	2.26E-05
Bioremediation	1,208,400	lb/yr	0.00132	lb/ton	Engineering Estimate	3.99E-04
Total						**1.47E-03**
Phenanthrene						
ORU Boiler	100,690	gal/yr	4.73E-04	lb/Mgal	AP-42 Table 1.4-3	**2.38E-05**
Phenol						
Macro Encapsulation	2,138,019	lb/yr	0.0142	lb/ton	Engineering Estimate	7.59E-03
Solidification	35,916	lb/yr	10.9	lb/ton	Engineering Estimate	9.79E-02
Propane Space Heater	1,400	gal/yr	0.00108	lb/Mgal	CATEF	7.56E-07
Bioremediation	72,160	lb/yr	0.00125	lb/ton	Engineering Estimate	2.26E-05
Bioremediation	62,060	lb/yr	0.0148	lb/ton	Engineering Estimate	2.30E-04
Total						**1.06E-01**
Propionaldehyde						
Waste Handling/Inspection	128	lb/yr	0.0000225	lb/ton	Engineering Estimate	7.20E-10
Landfill	128	lb/yr	0.0503	lb/ton	Engineering Estimate	1.61E-06
Stabilization	128	lb/yr	21	lb/ton	Engineering Estimate	6.72E-04
Total						**6.74E-04**
PCB						
Macro Encapsulation	133,571	lb/yr	0.00692	lb/ton	Engineering Estimate	2.31E-04
Bioremediation	87,120	lb/yr	0.0134	lb/ton	Engineering Estimate	2.92E-04
Total						**5.23E-04**
Polycyclic organic matter						
ORU Propane	0.2	MM scf/yr	5.18E-05	lb/MM sf	Engineering Estimate	**5.18E-09**
Pyrene						
ORU Boiler	100,690	gal/yr	1.39E-04	lb/Mgal	AP-42 Table 1.4-3	**7.00E-06**
Selenium						
Propane Space Heater	1,400	gal/yr	0.00013	lb/Mgal	CATEF	**9.10E-08**
Styrene						
Thermal Oxidizer (TOU-1)	20.5	MMscf/yr	0.47	lb/MMscf	Engineering Estimate	0.005
Waste Handling/Inspection	1,320	lb/yr	0.3	lb/ton	Engineering Estimate	9.90E-05
Landfill	1,320	lb/yr	0.097	lb/ton	Engineering Estimate	3.20E-05
Total						**4.99E-03**
Tetrachloroethylene						
ORU LFG	245.5	MMscf/yr	6.10E-03	lb/MMscf	Engineering Estimate	7.49E-04
Waste Handling/Inspection	6,873,033	lb/yr	0.0000176	lb/ton	Engineering Estimate	3.02E-05
Landfill	6,873,033	lb/yr	0.0000155	lb/ton	Engineering Estimate	2.66E-05
Macro Encapsulation	2,199,706	lb/yr	0.00191	lb/ton	Engineering Estimate	1.05E-03
Stabilization	652,380	lb/yr	0.0711	lb/ton	Engineering Estimate	1.16E-02

Compound/Emission Point	Operating Parameters		Emission Factor			Emissions ton/yr
			Rate		Reference	
Solidification	108,440	lb/yr	0.0209	lb/ton	Engineering Estimate	5.67E-04
Bioremediation	24,440	lb/yr	0.0259	lb/ton	Engineering Estimate	1.58E-04
Bioremediation	87,120	lb/yr	0.0134	lb/ton	Engineering Estimate	2.92E-04
Bioremediation	70,320	lb/yr	0.0637	lb/ton	Engineering Estimate	1.12E-03
Total						**1.56E-02**
Toluene						
Thermal Oxidizer (TOU-1)	20.5	MMscf/yr	16.23	lb/MMscf	Engineering Estimate	0.17
ORU LFG	245.5	MMscf/yr	1.33E-01	lb/MMscf	Engineering Estimate	1.64E-02
ORU Propane	0.2	MM scf/yr	3.40E-03	lb/MM sf	Engineering Estimate	3.40E-07
ORU Boiler	100,690	gal/yr	9.45E-02	lb/Mgal	AP-42 Table 1.4-3	4.76E-03
Concrete Crush Engines	7,941	MMBtu/yr	4.09E-04	lb/MMBtu	AP-42 Table 3.3-2	1.62E-03
Waste Handling/Inspection	6,719,434	lb/yr	0.0109	lb/ton	Engineering Estimate	1.83E-02
Landfill	6,719,434	lb/yr	0.0000292	lb/ton	Engineering Estimate	4.91E-05
Macro Encapsulation	2,260,276	lb/yr	0.0242	lb/ton	Engineering Estimate	1.37E-02
Stabilization	651,060	lb/yr	0.153	lb/ton	Engineering Estimate	2.49E-02
Solidification	10,120	lb/yr	0.0192	lb/ton	Engineering Estimate	4.86E-05
Gas Tank	9,927	gal/yr	0.66	wt % VOC	AP-42 Sec 7.1	2.30E-04
Bioremediation	24,440	lb/yr	0.0259	lb/ton	Engineering Estimate	1.58E-04
Bioremediation	62,060	lb/yr	0.0148	lb/ton	Engineering Estimate	2.30E-04
Bioremediation	257,480	lb/yr	0.0132	lb/ton	Engineering Estimate	8.50E-04
Bioremediation	440	lb/yr	1.98	lb/ton	Engineering Estimate	2.18E-04
Total						**0.25**
Toxaphene						
Macro Encapsulation	513,908	lb/yr	0.00746	lb/ton	Engineering Estimate	**9.58E-04**
Trichloroethylene						
ORU LFG	245.5	MMscf/yr	2.42E-03	lb/MMscf	Engineering Estimate	2.97E-04
Waste Handling/Inspection	1,944,282	lb/yr	0.0000261	lb/ton	Engineering Estimate	1.27E-05
Landfill	1,944,282	lb/yr	0.0000547	lb/ton	Engineering Estimate	2.66E-05
Macro Encapsulation	2,022,186	lb/yr	0.00208	lb/ton	Engineering Estimate	1.05E-03
Stabilization	652,380	lb/yr	0.0711	lb/ton	Engineering Estimate	1.16E-02
Solidification	33,730	lb/yr	0.0594	lb/ton	Engineering Estimate	5.01E-04
Bioremediation	87,120	lb/yr	0.0134	lb/ton	Engineering Estimate	2.92E-04
Bioremediation	440	lb/yr	1.03	lb/ton	Engineering Estimate	1.13E-04
Total						**1.39E-02**
Triethylamine						
Waste Handling/Inspection	52,716	lb/yr	0.006	lb/ton	Engineering Estimate	7.91E-05
Landfill	52,716	lb/yr	0.00903	lb/ton	Engineering Estimate	1.19E-04
Solidification	52,716	lb/yr	8.42	lb/ton	Engineering Estimate	1.11E-01
Total						**1.11E-01**
Vinyl Acetate						
Waste Handling/Inspection	2,200	lb/yr	0.00827	lb/ton	Engineering Estimate	4.55E-06
Landfill	2,200	lb/yr	0.0407	lb/ton	Engineering Estimate	2.24E-05
Total						**2.69E-05**
Vinyl chloride						
ORU LFG	245.5	MMscf/yr	2.82E-03	lb/MMscf	Engineering Estimate	**3.46E-04**
Waste Handling/Inspection	812,660	lb/yr	0.0000205	lb/ton	Engineering Estimate	4.16E-06

Compound/Emission Point	Operating Parameters		Emission Factor			Emissions ton/yr
			Rate		Reference	
Landfill	812,660	lb/yr	0.00189	lb/ton	Engineering Estimate	3.84E-04
Macro Encapsulation	2,376,652	lb/yr	0.00000397	lb/ton	Engineering Estimate	2.36E-06
Stabilization	3,080	lb/yr	0.000361	lb/ton	Engineering Estimate	2.78E-07
Solidification	10,120	lb/yr	0.192	lb/ton	Engineering Estimate	4.86E-04
Total						**1.22E-03**
Vinylidene Chloride						
Waste Handling/Inspection	103,000	lb/yr	0.0000769	lb/ton	Engineering Estimate	1.98E-06
Landfill	103,000	lb/yr	0.00206	lb/ton	Engineering Estimate	5.30E-05
Macro Encapsulation	511,640	lb/yr	0.00206	lb/ton	Engineering Estimate	2.63E-04
Stabilization	2,640	lb/yr	0.0063	lb/ton	Engineering Estimate	4.16E-06
Solidification	880	lb/yr	0.00000759	lb/ton	Engineering Estimate	1.67E-09
Total						**3.23E-04**
m,p-Xylenes						
Thermal Oxidizer (TOU-1)	20.5	MMscf/yr	2.50	lb/MMscf	Engineering Estimate	**0.03**
o-Xylenes						
Thermal Oxidizer (TOU-1)	20.5	MMscf/yr	0.97	lb/MMscf	Engineering Estimate	0.01
ORU LFG	245.5	MMscf/yr	1.15E-01	lb/MMscf	Engineering Estimate	1.41E-02
Concrete Crush Engines	7,941	MMBtu/yr	2.85E-04	lb/MMBtu	AP-42 Table 3.3-2	1.13E-03
Waste Handling/Inspection	1,670,200	lb/yr	0.146	lb/ton	Engineering Estimate	6.10E-02
Landfill	1,732,260	lb/yr	0.0000114	lb/ton	Engineering Estimate	4.94E-06
Macro Encapsulation	2,093,906	lb/yr	0.00252	lb/ton	Engineering Estimate	1.32E-03
Stabilization	651,060	lb/yr	0.142	lb/ton	Engineering Estimate	2.31E-02
Solidification	10,560	lb/yr	0.214	lb/ton	Engineering Estimate	5.65E-04
Gas Tank	9,927	gal/yr	0.05	wt % VOC	AP-42 Sec 7.1	1.74E-05
Bioremediation	24,440	lb/yr	0.0259	lb/ton	Engineering Estimate	1.58E-04
Bioremediation	62,060	lb/yr	0.0148	lb/ton	Engineering Estimate	2.30E-04
Bioremediation	440	lb/yr	1.98	lb/ton	Engineering Estimate	2.18E-04
Total						**0.11**
Zinc						
Propane Space Heater	1,400	gal/yr	0.00308	lb/Mgal	CATEF	**2.16E-06**
TOTAL HAP						**12.27**

State of Oregon
Department of Environmental Quality

Organic Recovery Unit #2
Design and Operations Plan

For

Chemical Waste Management of the Northwest, Inc.

Arlington Facility • ORD 089 452 353
17629 Cedar Springs Lane
Arlington, Oregon

Standalone Document No. 22

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ED_002469_00000415-00001

TABLE OF CONTENTS

ED_002469_00000415-00002

LIST OF APPENDICES

- ORGANIC RECOVERY UNIT #2

1.1 Introduction

This *Organic Recovery Unit #2 Design and Operations Plan* (Plan) establishes the design and operating standards for the Bioremediation and the Organic Recovery Unit (ORU) treatment processes.

1.2 Purpose

- To ensure compliance with all aspects of Organic waste treatment under 40 CFR §264 subparts AA,BB, and CC air emissions standards and;,
- To ensure treatment standards are achieved for all treated wastes per 40 CFR §268.40.

1.1.1 Organic Recovery Unit ORU-2

CWMNW operates two Organic Recovery Units (ORU), designated ORU-1 and ORU-2. Both ORU treatment systems are located adjacent to Containment Building B-5. ORU-1 received approval to operate in 2010 and has been operating since that time. ORU-1 is covered under *Standalone #19 – Bioremediation and Organic Recovery Unit Design and Operations Plan.*

ORU-2 was constructed and commissioned in 2016, The ORU-2 treatment unit treats listed and/or characteristic hazardous wastes using an indirect fired thermal process to reduce listed and/or characteristic hazardous wastes to the levels specified in 40 CFR Part 268. Secondary treatment methods may be required to reduce the treated listed and/or characteristic hazardous wastes to the levels specified in 40 CFR Part 268 prior to land disposal. Wastes accepted for treatment through the ORU-2 treatment system are staged inside Building B-5 and in approved containers in outside storage areas. Post-treatment solids awaiting LDR clearance or further treatment are temporarily stored in piles inside Building B-4 or B-5.

1.3 ORU-2 Treatment System

ORU-2 material handling conveyers receive material from two feed hoppers and convey the media to be treated to the ORU treatment unit. System feed conveyors are fully enclosed and ventilated to the thermal oxidizer. The ORU-2 system consists of a double pass rotary furnace that indirectly heats the media traveling through the inside of the rotary tube, and the treated media discharges at the feed end of the unit. System components subject to freezing are heat traced and insulated to prevent freezing. As-built design plans for the ORU-2 are contained in Appendix A.

ED_002469_00000415-00004

1.4 Wastes Approved for Treatment

ORU-2 physically treat media with organic contamination. The following table illustrates the general waste families and possible associated RCRA Codes being treated by the system.

Table 19-1: ORU Approved Waste Codes

APPROVED EPA CODES
D001, D002, DOO3, D004, D005, D006, D007, D008, D009, D010, D011, D012, D013, D014, D015, D016, D017, D018, D019, D020, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D031, D032, D033, D034, D035, DO36, D037, D038, D039, D040, F001, F002, F003, F005, F034, F037, F038, K001, K048, K049, K050, K051, K052, K143, K169, K170, K171, K172, P037, P059, P089, U002, U019, U031, U036, U051, U052, U060, U061, U112, U129, U140, U154, U159, U161, U165, U188, U210, U220, U228, U239

The ORU Treatment systems are made up of several subsystems that include the feed systems, an indirect fired Anaerobic Thermal Desorption Unit (ATDU), ash handling systems, vapor condensing system, process water handling and treatment systems, and air emissions control systems. A process flow diagram for the various systems is contained in Appendix B.

1.5 Waste Segregation

The treatment of the wastes with codes in Table 19-1 through the ORU system may require the isolation of process residuals dependent on the EPA codes associated with the waste being treated. These incompatible wastes will be treated separately following a system change over. The system changeover process shall include the following tasks, all wastes in the feed system will be processed through the ATDU, all process water will be evacuated from the system and treated through the process water treatment system, and all sludges accumulated in the sludge removal system will be removed and stored in accordance with the WAP. Evacuated residual sludges and process waters will be treated and/or managed in accordance with the WAP.

ED_002469_00000415-00005

2 - ORU-2 SYSTEM OVERVIEW

2.1 Anaerobic Thermal Desorption Unit

The system is designed to separate the organic constituents from contaminated media in such a manner that they are preserved for collection and recycling. The Anaerobic Thermal Desorption Unit (ATDU) includes a rotating cylinder that is slightly inclined downward from the product feed end. This rotating cylinder is enclosed within an outer shell, within which heat is applied to the outside of the rotating cylinder. Either Landfill Gas or Propane will be used to fire the ATDU. Wastes inside the ATDU do not directly contact the heat source, and an inert atmosphere is maintained in the cylinder to prevent oxidation of the organic constituents. The indirectly heated cylinder vaporizes water and organics contained in the waste. The primary heat transfer mechanism is conduction through the cylinder wall.

2.2 ATDU Operating Conditions

The ATDU rotating cylinder operates under an inert anaerobic atmosphere, thereby preventing any oxidation or destruction of the hydrocarbon or chemical constituents. The inert anaerobic atmosphere is maintained during start-up and shutdown by purging the ATDU with steam to displace the oxygen. During normal operations, the water content of the feedstock is typically sufficient to generate enough water vapor to maintain the inert atmosphere inside the desorber and additional steam is therefore not required. The seals at the inlet and discharge ends of the rotary drum combined with the double tipping valve airlocks at either end maintain a non-oxidizing atmosphere in which the waste can be safely vaporized.

An oxygen sensor connected to the SCADA control system is installed in the discharge end of the ATDU continuously monitors the oxygen concentration within the rotary drum which during normal operations is typically below 1 percent. The SCADA control system the oxygen sensor measures the oxygen concentration inside the drum, in the event the oxygen level increases above 1 percent, steam can be added to reduce the oxygen concentration down to normal levels. In the event the oxygen level rises above 5 percent this would constitute a malfunction condition, the SCADA system will automatically shut down the burners and stop feed into the ATDU.

2.3 ATDU Shutdown Strategy

The system is shutdown employing three scenarios; these are Normal. Malfunction, and Emergency scenarios. The following is a discussion for each scenario;

2.3.1 Emergency Shutdown

Emergency shutdowns are required for

- Feed to the ATDU system is shutdown, feed conveyor system are shutdown
- Burners shutdown
- ATDU shutdown.
- Thermal Oxidizer bypass valve set to open
- Thermal Oxidizer is shutdown

ED_002469_00000415-00006

2.3.2 Normal Plant Shutdown

The normal shutdown procedure involves shutting down equipment from the feed end of the unit down through the discharge equipment, allowing adequate time for each conveyor or piece of equipment to fully discharge before proceeding to the next item. The rotary drum will be allowed to cool before drum rotation is stopped. During this cooldown period steam is added to ensure the anaerobic atmosphere inside the ATDU is maintained. After the unit has cooled the vapor recovery and ancillary support systems are shut down. Finally, the thermal oxidizer system is shutdown

2.3.3 Shutdown due to Malfunction

The ATDU system is programmed with both software and hardwired process interlocks to ensure components shut down automatically upon the failure or malfunction of any critical piece of process equipment. Failure of the system to maintain proper combustion in the furnace, process conditions in the ATDU or thermal oxidizer, or a failure of the material handling equipment downstream of the ATDU will cause the system to automatically switch off the combustion system, stop the feed of material into the unit. Should the malfunction involve the thermal oxidize, the system, will divert process vapors away from the thermal oxidizer until the upset condition can be remedied.

2.3.4 Emergency Plant Shutdown

Hardwired interlocks will initiate an emergency shutdown upon loss of primary electrical power, high oxygen concentration inside the ATDU or a runaway stack temperature in the ATDU furnace or Thermal Oxidizer Unit. Redundant gas safety valves installed on each burner spring fail closed if there is any loss in the numerous permissive conditions or interlocks that allow their opening. Feed to the plant is stopped automatically. In certain cases, the thermal oxidizer will remain running but should the emergency condition involve the thermal oxidizer, the system will divert process vapors away from the thermal oxidizer until the upset condition can be remedied. An uninterruptible power supply (UPS) supports the control system to allow the operator to monitor the system shutdown in the event of complete power loss.

2.4 Feed Systems

A below grade mixing hopper south of contaminant Building B5 receives untreated medias, moisture conditions them if necessary and feeds the waste through a series of conveyors to the ATDU for thermal separation. If desired this mixing hopper feed system can also pile the moisture conditioned media inside Building B-5 allowing for storage of the media inside the building. A second feed hopper inside the building is loaded by mechanical methods, the hopper feeds a debris screen which removes materials meeting the definition of debris contained in 40 CFR 268.45 from the waste. Oversize media separated by the screening system is classified as debris and is stored on the floor in containment Building B-5 for delivery to other treatment methods in accordance with Standalone #11 - *Debris Treatment Plan*. The undersize media is then fed through a series of conveyors to the ATDU for thermal separation. An arrangement of airlocks ensure that oxygen is not able to enter the unit during the process operation. The ORU Feed Systems are designed to maintain compliance with 40 CFR 61, Subpart FF (Benzene Waste Operations NESHAP, or BWON) control and treatment standards to manage BWON subject materials when required.

2.5 Treated Ash Systems

The ORU vaporizes organic contaminants contained in media and produces a treated ash that is cooled through jacketed cooling conveyors. A series of transfer conveyors route the processed solids to several separate discharge points in Building B-4, each discharge point will be used to create piles inside the containment building approximately 250 tons in size. Ash may also be stored in containment Building B-5 or in approved containers prior to disposal or further treatment. The ash from the treatment process can be landfilled once the waste meets LDR limits in 40 CFR 268.7. Ash that does not meet the constituent specific LDRs is further treated and cleared before disposal. Confirmation testing is completed in accordance with Standalone #1- *Waste Analysis Plan.*

2.6 Vapor Recovery System

The organic vapors and water are gasified inside the rotating cylinder, and conveyed to a condensing system. The condensing system uses process water to quench the organic vapors. Once quenched the resulting quench water is separated into an organic fraction and a water fraction. The organic fraction separated from the treated wastes can be generally classified in two categories;

2.6.1 Petroleum Fractions

The condensed and separated organic fraction for wastes with recoverable petroleum fraction is not regulated according to 40 CFR 261.6(a)(3)(iv)(C), and is transferred to one of three product storage tanks in the tank farm area. Organic fraction product for these wastes is recycled as a commodity depending on makeup.

2.6.2 Non-Petroleum Fractions

The condensed organic fraction for wastes without recoverable petroleum fractions is subject to the disposal requirements contained in 40 CFR 268 and are managed in accordance with *Standalone #1 – Waste Analysis Plan*. The condensed organic fraction is transferred as process water to the water treatment system in the tank farm area.

2.7 Settled Solids

Settled solids which accumulate in the vapor recovery sump are conveyed out of the sump into a closed hopper. These accumulated solids may be reintroduced back into the ORU feed system for treatment using pumps or mechanical means. In some cases, a centrifuge may be used to dewater these solids for shipment offsite for additional treatment. Liquids separated in the centrifuging process are introduced back into the process water for reuse and/or final treatment.

2.8 Process Water System

Reclaimed commodities are separated from the process water fraction in the oil water separator. Process water is recycled back into the system, and any residual water condensed out of the incoming waste is stored in the process water tank. Residual process water is transferred to surge tanks in the tank farm area. Process water is treated through an onsite water treatment system in the tank farm area with sand and carbon filtration. Chemical treatment prior to filtration may be required for some waste streams. Treated process water meeting LDR

requirements may be reused for moisture conditioning of wastes in the solidification and stabilization process, or sent to the facilities solar evaporation ponds.

2.9 Air Emission Controls

Any residual non-condensable organic vapors are passed through a thermal oxidizer for complete destruction. The thermal oxidizer operation and performance is regulated by the facilities ACDP permit.

ED_002469_00000415-00009

- ORU-2 SYSTEM TANKS

The following twenty-one (21) tanks are used in the ORU treatment system. Tank numbers listed below coincide with tank numbers provided on the flow diagram in Appendix B. All hazardous waste storage tanks associated with the ORU treatment system are managed in accordance with Standalone #8 – *Bulk Storage Plan*.

Table 22-3: ORU-2 Tank Listing

TANK #	DESCRIPTION	TYPE	CAPACITY (Gal)
RCRA Tanks			
F-1301	Interceptor	Above ground, horizontal, flat bottom, CS	3,000
F-1401	Oil Water Separator	Above ground, horizontal, cone bottom, CS	13,200
F-1402	Process Water Tank	Above ground, vertical, cone bottom, CS	20,000
F-1403	Process Water Mix Tank 1	Above ground, vertical, cone bottom, CS	20,000
F-1404	Process Water Mix Tank 2	Above ground, vertical, cone bottom, CS	20,000
F-1405	Treated Process Water Tank 1	Above ground, vertical, cone bottom, CS	20,000
F-1406	Treated Process Water Tank 2	Above ground, vertical, cone bottom, CS	20,000
F-1407	Treated Process Water Tank 3	Above ground, vertical, cone bottom, CS	20,000
F-1408	Treated Process Water Tank 4	Above ground, vertical, cone bottom, CS	20,000
F-1409	Treated Process Water Tank 5	Above ground, vertical, cone bottom, CS	20,000
F-1410	Treated Process Water Tank 6	Above ground, vertical, cone bottom, CS	20,000
F-1411	Treated Process Water Tank 7	Above ground, vertical, cone bottom, CS	20,000
F-1412	Treated Process Water Tank 8	Above ground, vertical, cone bottom, CS	20,000
F-1413	Treated Process Water Tank 9	Above ground, vertical, cone bottom, CS	20,000
F-1414	Treated Process Water Tank 10	Above ground, vertical, cone bottom, CS	20,000
F-1415	Treated Process Water Tank 11	Above ground, vertical, cone bottom, CS	20,000
F-1416	Treated Process Water Tank 12	Above ground, vertical, cone bottom, CS	20,000
ME-1101	Mix Hopper A	Above Ground Mix/Feed Hopper, CS	7,473
ME-1102	Feed Hopper B	Above Ground Feed Hopper	1,742
V-1401A	Sand Filter A	Above Ground Sand Filter A	100
V-1401B	Sand Filter B	Above Ground Sand Filter B	100
V-1402	Carbon Filter	Stainless Steel	3,950
Non-RCRA Tanks			
F-1417	Product Tank 1	Above ground, vertical, cone bottom, CS	20,000
F-1418	Product Tank 2	Above ground, vertical, cone bottom, CS	20,000
F-1419	Product Tank 3	Above ground, vertical, cone bottom, CS	20,000

ED_002469_00000415-00010

- SYSTEM SECONDARY CONTAINMENT

The ORU-2 System containment is made up of 5 separate containment systems as listed below:

Table 22-4: ORU-2 System Containment

Site Plan Identifier	Area Description	Construction	Required Containment	Actual Containment
C	ORU System Equipment	Reinforced Concrete	3,739.3 ft^3	4,101.3 ft^3
B3	Product Tank Storage	Reinforced Concrete	2,948.6 ft^3	3,152.5 ft^3
B2	Process Water Treatment Area	Reinforced Concrete	2,932.1 ft^3	3,502.5 ft^3
B1	Treated Water Storage	Reinforced Concrete	3,433.3 ft^3	6,265.2 ft^3
D	Mixing Hopper Vault	Reinforced Concrete	1,018.4 ft^3	9,781.3 ft^3
A	Truck Offload Area	Reinforced Concrete	120 ft^3	159.8 ft^3

All ORU-2 containment areas are designed to meet the requirements contained in 40 CFR §264.193. 40 CFR §264.193(e)(2) requires that the secondary containment areas be large enough to contain the capacity of the largest tank plus precipitation from a 25-year, 24-hour storm, (refer to Appendix C for containment calculations). All joints in containment slabs are constructed with chemical-resistant waterstops meeting the requirements of 40 CFR §264.193(e)(2)(iii)). The slab is coated with a chemically compatible impermeable coating meeting the requirements of 40 CFR §264.193(e)(2)(iv)). Stormwater collected from the sumps in these containment areas will be pumped to the process water system and ultimately treated through the process water treatment system. The P.E. certification of the containment structures and tanks required by 40 CFR 264.192(b) will be maintained at the facility in the operating record.

ED_002469_00000415-00011

5 - ORU-2 OPERATIONS

5.1 Organic Recovery Unit Contaminated Waste Handling

Following arrival and acceptance of the waste, the wastes are either stored in approved storage areas or fed directly into the treatment system through two feed hoppers in the system.

5.2 Subpart CC Waste Handling

Wastes subject to Subpart CC Level 1 controls will be stored or accepted in roll-off boxes and dump type vehicles may be placed on the slab floor in Containment Building B-5. Wastes subject to Subpart CC Level 2 controls will remain in the Level 2 shipping containers in accordance with Standalone # 9 - *Container Storage Design and Operations Plan* until they are transferred to the ORU-2 outside mixing feed hopper and amended with drying agents as necessary. Wastes with higher moisture contents may also be mixed with dryer materials in the mixing feed hopper or inside Building B-5 to attain appropriated moisture content.

5.3 Subpart FF Waste Handling

CWMNW tracks the facility's Total Annual Benzene (TAB) and it has historically been less than 1 Mg; therefore, CWMNW is not subject to controls in Subpart FF. However, in the event that generators require their specific wastes to be managed under controls, wastes subject to 40 CFR 61, Subpart FF may be handled in controlled containers such as roll off boxes until the material is transferred into the ORU-2 mixing feed hopper. These wastes will be maintained in containers that meet BWON control requirements, and shall be inspected and monitored in order to comply with all related standards. The vapors throughout the ORU feed system are routed through closed-vent systems to control devices, and all the equipment and piping lines are subject to BWON inspection and monitoring requirements.

5.4 Waste Preparation for Organic Recovery

In general, waste preparation improves the ability of the ORU-2 to treat the contaminated waste. This preparation includes specific operations for screen sizing and size reduction that are also dependent on the uniformity, moisture, and liquid content of the incoming contaminated waste.

Screening (vibrating or non-vibrating) is a primary operation, and wastes are screened or strained to remove debris. Blending low and high concentration waste or high and low boiling point wastes optimizes the operation and reduces problems in liquids recovery.

5.5 Organic Recovery Unit Treatment Capacity ORU-2

The indirect-fired ATDU has an ultimate design capacity of 30 million British thermal units (30 MMBtu), and a theoretical heat transfer efficiency of 60-percent. The temperature capacity of the system is 1,200°F. The actual operating temperatures vary depending upon the boiling points of the organic constituents being extracted such that optimal fuel consumption is maintained.

ED_002469_00000415-00012

The theoretical treatment capacity of the system (tons/hour) depends primarily upon the moisture content of the waste and the thermal capacity of the ATDU. Appendix D provides the estimated treatment capacity of the system running at 900° F, based upon the moisture content of incoming waste, and using a thermal transfer efficiency of 60-percent.

ED_002469_00000415-00013

- ORU-2 REGULATORY STANDARDS

6.1 Organic Recovery Unit - 40 CFR Part 264 Subparts J/X Compliance

6.1.1 40 CFR Part 264, Subpart J Compliance

The ORU contains process water tanks that store and/or treat hazardous waste and are subject to 40 CFR Part 264, Subpart J. These tanks are managed in compliance with Standalone #8 - *Bulk Storage Plan*, which contains requirements for inspection and operation of these tanks. The hazardous waste storage tank systems in both of the ORU systems have been adequately designed, have sufficient structural integrity, and are acceptable for storing hazardous waste. Required engineer's certifications are contained in Standalone #8 - *Bulk Storage Plan*. Further, the tanks are provided with sufficient secondary containment meeting the requirements of 40 CFR 264.193. Containment calculations for the system are shown in Appendix C. All tanks associated with the ORU are included in Standalone #8 - *Bulk Storage Plan*, which includes all permitted RCRA tanks at the facility.

In the event of any leak or spill from a tank system or secondary containment system, the facility shall comply with response requirements per 40 CFR 264.196. Closure and post-closure care of the hazardous waste tank systems are discussed in Standalone #5 – *Closure/Post-Closure Plan.*

6.1.2 40 CFR Part 264, Subpart X Compliance

The ORU-2 treatment system contains a thermal desorption unit (TDU) and shaker screen equipment that is subject to 40 CFR Part 264, Subpart X. These miscellaneous units are most similar to tank systems; and thus, the applicable and appropriate provisions of 40 CFR Part 264, Subpart J shall be complied with to ensure protection of human health and the environment. Standalone #23 – Subpart X units includes these pieces of equipment.

6.2 Routine Tank Inspections

The elements and frequency of routine inspections of ORU-2 systems hazardous waste tanks, piping and containment are included in Standalone #3 - *Inspection Plan*. The tanks and piping shall be inspected for visible leaks and general condition. The overfill alarm systems shall be tested to insure they are in working order. The containment area and sumps shall be inspected for evidence of any liquid collection and evidence of any leakage from the associated pipes, pumps, tanks and equipment contained within the area. An inspection form for both the ORU systems tanks, piping and containment is contained in Standalone #3 - *Inspection Plan.*

6.3 RCRA Subparts AA, BB and CC and Benzene NESHAPS - Applicability and Compliance for Organic Recovery Systems

6.3.1 40 CFR Part 264, Subpart AA Applicability

40 CFR Part 264, Subpart AA defines the air emission standards for process vents associated with distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operations. ORU-2 does not contain any distillation, fractionation, thin-film evaporation, solvent

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extraction, or air or steam streaming operation; and thus, 40 CFR Part 264, Subpart AA does not apply to either ORU Treatment system and subsystems.

6.3.2 40 CFR Part 264, Subpart BB Applicability and Compliance

ORU-2 systems are subject to the requirements of 40 CFR Part 270; and thus, all equipment that contains or contacts hazardous waste with organic concentrations of at least 10 percent by weight is subject to 40 CFR Part 264, Subpart BB. Compliance requirements for 40 CFR Part 264, Subpart BB is discussed in the Organic Recovery Unit Controls and Monitoring section below

6.3.3 40 CFR Part 264, Subpart CC Applicability

The requirements of 40 CFR Part 264, Subpart CC apply to owners and operators of all facilities that treat, store, or dispose of hazardous waste in tanks, surface impoundments, or containers subject to 40 CFR Part 264, Subparts I, J, or K. As discussed in Section 3.6.1, the ORU does contain hazardous waste storage tanks subject to 40 CFR Part 264, Subpart J; however, per 40 CFR 264.1080(b)(7), the requirements of 40 CFR Part 264, Subpart CC do not apply to a hazardous waste management unit that the owner or operator certifies is equipped with and operating air emission controls in accordance with the requirements of an applicable Clean Air Act regulation codified under 40 CFR Part 60, Part 61, or Part 63. All hazardous waste storage tanks in the ORU are equipped with and operate with air emission controls in accordance with 40 CFR Part 61, Subpart FF; and thus, the hazardous waste storage tanks in the ORU are not subject to 40 CFR Part 264, Subpart CC. All 40 CFR Part 264, Subpart CC requirements, if any, are contained in the facilities ACDP Permit.

Subpart CC regulations are applicable to containers which are not handled in accordance with 40 CFR Part 61, Subpart FF, having a design capacity greater than 0.1 m^3 (approximately 26 gallons), and containing hazardous waste that has an average volatile organic (VO) concentration greater than 500 ppm by weight (ppmw) at the point of waste generation. Waste received at the facility for ORU treatment will typically arrive or be placed in containers that are larger than the exempted capacity and may contain hazardous waste with VO concentrations greater than 500 ppmw. CWMNW complies with Subpart CC container standards as provided in the Permit and Standalone # 9 - *Container Storage Design and Operations Plan*. In addition, the waste in any container is unloaded in an expedient manner to minimize potential organic air emissions. If, for any reason, unloading of the contaminated waste does not commence immediately, the container is to be kept covered with a lid that meets Subpart CC Level 1 controls. The lid or cover forms a continuous barrier over the entire surface area with no visible cracks, holes, gaps or other open spaces.

6.3.4 40 CFR Part 61, Subpart FF Applicability and Compliance

The ORU at certain times is subject to 40 CFR Part 61, Subpart FF (BWON), since it is part of a facility that intermittently treats, stores, and disposes of BWON wastes from chemical plants and petroleum refineries where the regulation does apply. CWMNW tracks the facility's Total Annual Benzene (TAB), and has historically been less than 1 Mg. Therefore, CWMNW facility is not subject to controls in Subpart FF. However, should the generator require their specific wastes be managed under controls, wastes subject to 40 CFR 61, Subpart FF may be handled in controlled containers such as roll off boxes until the material is loaded into the mixing feed hopper. These wastes shall be maintained in containers that meet BWON control requirements,

and shall be inspected and monitored as to comply with all related standards. The vapors throughout the ORU-2 feed system are routed through closed-vent systems to control devices, and all the equipment and piping lines are subject to BWON inspection and monitoring requirements.

All fixed-roof tanks shall have no detectable emissions in accordance with Method 21 standards and must be closed and sealed unless it is opened for sampling, inspections, maintenance, repair or removal of the waste. All organic vapors that are vented shall be maintained in a closed-vent system that routes to the thermal oxidizer control device.

In instances where the tank is venting to the atmosphere by a pressure relief device, these devices must remain in closed, sealed positions during normal operations. They may be opened if it is necessary to prevent damage or permanent disfiguration to tank, during filling or emptying, or during malfunctions. This follows the alternative standard for tanks under 40 CFR 61.351, allowing tanks handling primarily organic material to have only a pressure relief device.

The oil water separator in the ORU system is vented to the closed vent system and to the thermal oxidizer control device.

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7 - ORU-2 CONTROLS AND MONITORING

The entire ORU-2 unit is centrally-monitored and controlled using a SCADA control package. The computer-based process controls provide graphic screens for effective plant control, monitoring, and data storage. The ORU-2 SCADA control system allow real-time access to all key plant parameters, and records the required operating parameters for compliance with the Part B permit and the ACDP permit. The demonstrated compliance SCADA system records the following parameters:

- Monitoring point CP1 - TDU Flue gas temperature - Deg F
- Monitoring point CP2 - TDU Syngas temperature - Deg F
- Monitoring point CP3 – TDU Infeed rate - TPH
- Monitoring point CP4 - Thermal oxidizer chamber temperature - Deg F
- Monitoring Point CP5 - Thermal oxidizer feed valve position – Open/Closed

The SCADA process controls enable the operator to improve system capacity, optimize fuel consumption, and protect the system against accidental malfunctions. The computerized system includes automatic fail safes for controlled shutdown of the system during upsets.

The process instrumentation and electrical switch gear is housed in a motor control center. The SCADA control system and operators control station is located in the control room south of the thermal processing system. Plant operators are trained in the operational and maintenance aspects of the system and these requirements are contained in Standalone #2 - *Security Procedures, Hazard Prevention, and Training Plan.*

7.1 Control Device Monitoring

The emissions control devices throughout the ORU system require monitoring of several different parameters, and the requirements for these are established in the facilities ACDP permit. The facility shall manage leaks identified by regular inspections in compliance with the requirements in 40 CFR Part 264.1064.

7.2 Tank Monitoring

As indicated in Section 3.6.3, all hazardous waste storage tanks in the ORU-2 system are equipped with and operate with air emission controls in accordance with 40 CFR Part 61, Subpart FF; and thus, the hazardous waste storage tanks in the ORU-2 system are not subject to 40 CFR Part 264, Subpart CC. The facility shall comply with all applicable requirements under 40 CFR Part 61, Subpart FF. All hazardous waste tanks are equipped with a fixed roof cover and shall be visually inspected by the owner and operator quarterly, and monitored via Method 21 annually. If leaks are detected, responses and recordkeeping shall be made in compliance with 40 CFR Part 264, Subpart BB and 40 CFR 264.1064.

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7.3 Other Equipment Monitoring

The ORU-2 is in heavy liquid service, and all pumps, valves, and pressure relief devices shall be observed for potential leaks using the following methods: Audible, Visual, and Olfactory (AVO), per 40 CFR Part 264, Subpart BB. There is no stated monitoring frequency for equipment in heavy liquid service according to 40 CFR Part 264, Subpart BB; however, monitoring shall be conducted quarterly consistent with industry best management practices, and to satisfy the BWON quarterly visual inspection requirements. When a leak is discovered, 40 CFR Part 60, Method 21 shall be used to measure the severity.

All sampling stations within ORU-2 system shall be built and kept up to design and installation requirements in order to stay compliant with 40 CFR, Subpart BB. All operational open-ended lines or pipes shall have a cap, plug, or double valve system when not in use.

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APPENDIX A
AS-BUILT DESIGN PLANS FOR ORU-2

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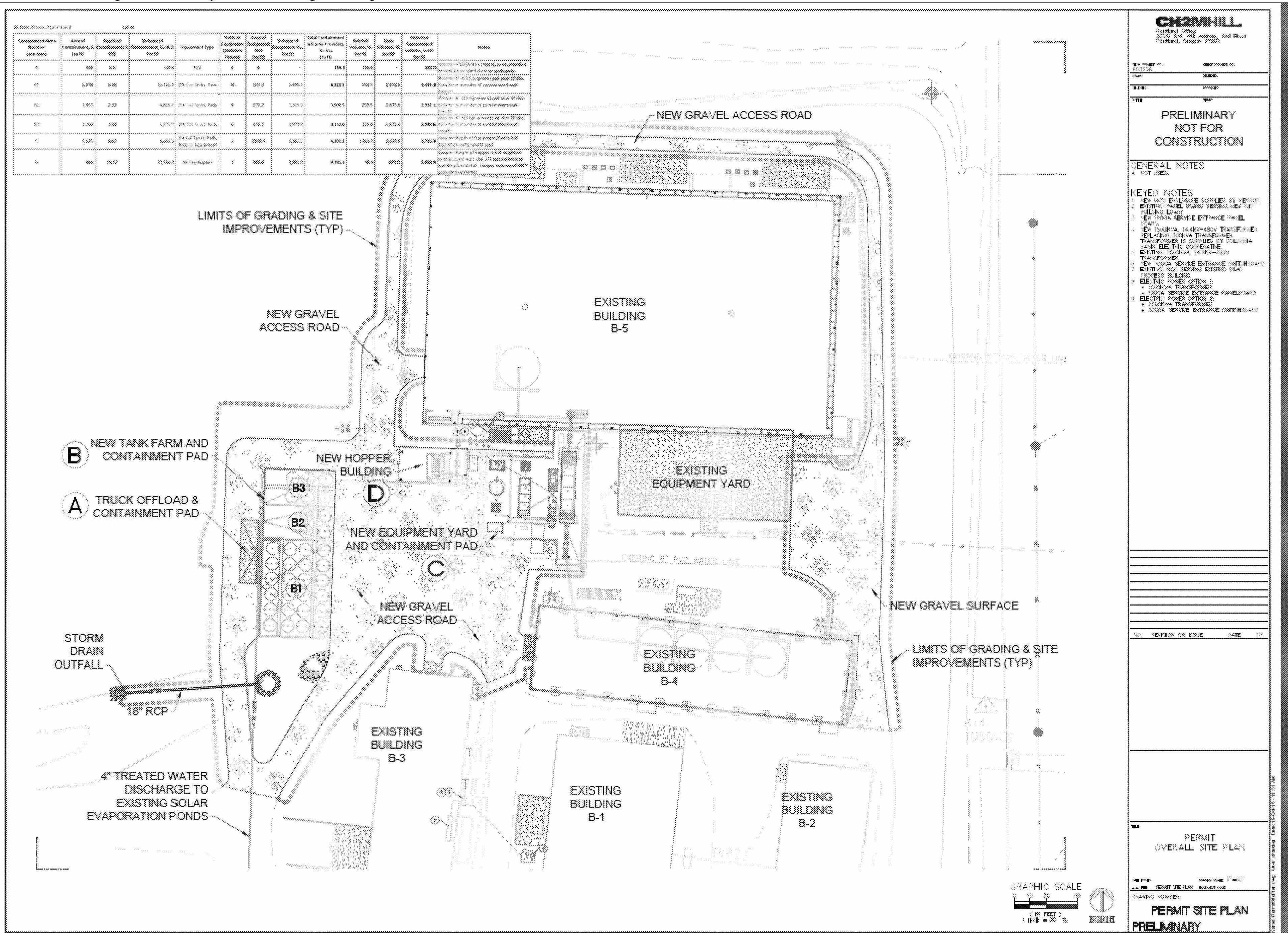
CH2MHILL
PRELIMINARY
NOT FOR
CONSTRUCTION
GENERAL NOTES
KEYED NOTES
NEW GRAVEL ACCESS ROAD
LIMITS OF GRADING & SITE
IMPROVEMENTS (TYP)
NEW GRAVEL
ACCESS ROAD
EXISTING
BUILDING
B-5
B
NEW TANK FARM AND
CONTAINMENT PAD
NEW HOPPER
BUILDING
D
A
TRUCK OFFLOAD &
CONTAINMENT PAD
B3
B2
B1
EXISTING
EQUIPMENT YARD
NEW EQUIPMENT YARD
AND CONTAINMENT PAD
C
NEW GRAVEL
ACCESS ROAD
NEW GRAVEL SURFACE
STORM
DRAIN
OUTFALL
18" RCP
EXISTING
BUILDING
B-4
LIMITS OF GRADING & SITE
IMPROVEMENTS (TYP)
EXISTING
BUILDING
B-3
4" TREATED WATER
DISCHARGE TO
EXISTING SOLAR
EVAPORATION PONDS
EXISTING
BUILDING
B-1
EXISTING
BUILDING
B-2
GRAPHIC SCALE
NORTH
PERMIT
OVERALL SITE PLAN
PERMIT SITE PLAN
PRELIMINARY

APPENDIX B
PROCESS FLOW DIAGRAM

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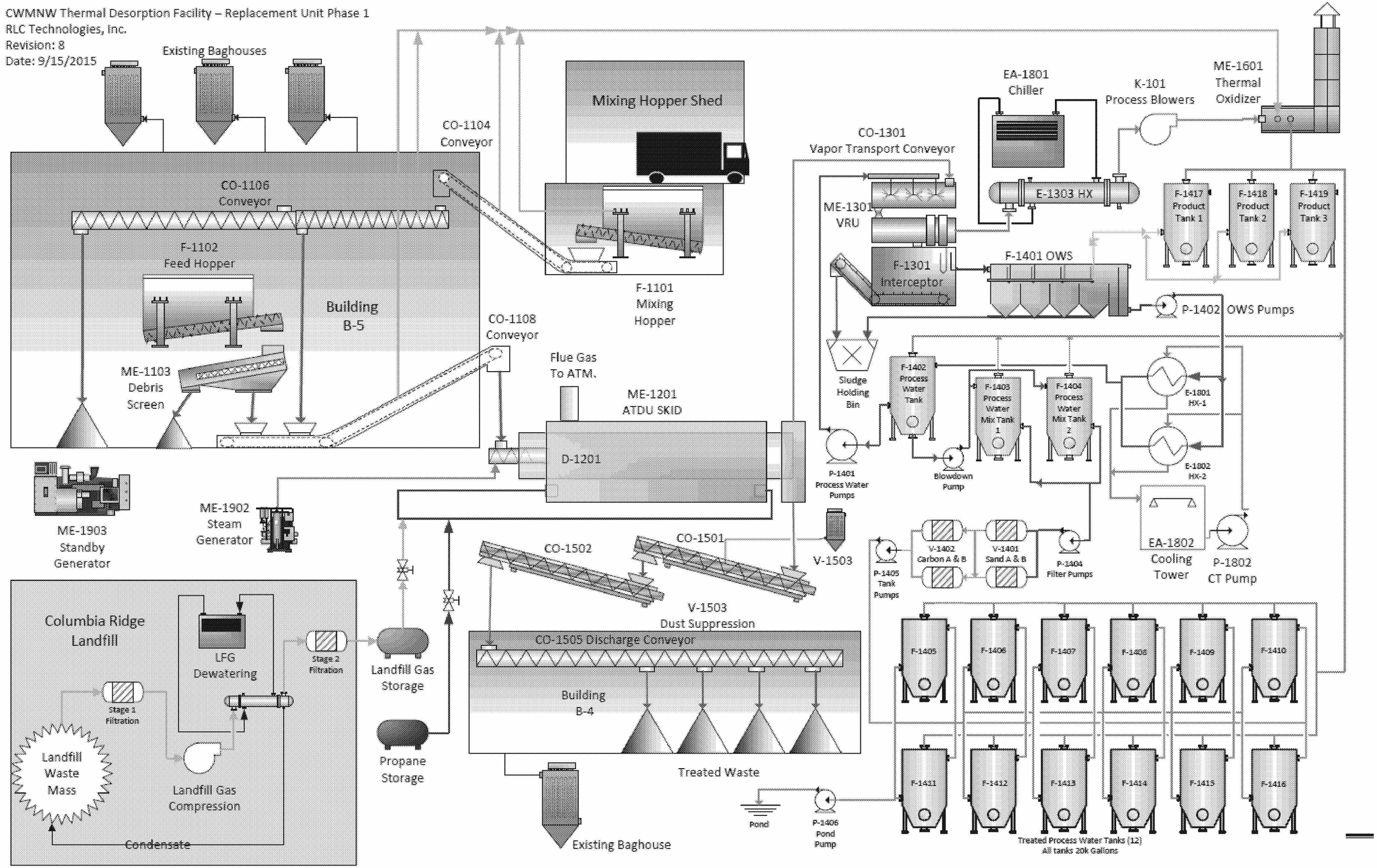
CWMNW Thermal Desorption Facility – Replacement Unit Phase 1
RLC Technologies, Inc.
Revision: 8
Date: 9/15/2015
Existing Baghouses
Mixing Hopper Shed
CO-1104 Conveyor
EA-1801 Chiller
K-101 Process Blowers
ME-1601 Thermal Oxidizer
CO-1301 Vapor Transport Conveyor
CO-1106 Conveyor
E-1303 HX
ME-1301 VRU
F-1417 Product Tank 1
F-1418 Product Tank 2
F-1419 Product Tank 3
F-1102 Feed Hopper
F-1301 Interceptor
F-1401 OWS
Building B-5
F-1101 Mixing Hopper
P-1402 OWS Pumps
CO-1108 Conveyor
Flue Gas To ATM.
ME-1201 ATDU SKID
Sludge Holding Bin
F-1402 Process Water Tank
F-1403 Process Water Mix Tank 1
F-1404 Process Water Mix Tank 2
E-1801 HX-1
E-1802 HX-2
ME-1103 Debris Screen
D-1201
P-1401 Process Water Pumps
Blowdown Pump
ME-1902 Steam Generator
ME-1903 Standby Generator
CO-1502
CO-1501
V-1503
V-1402 Carbon A & B
V-1401 Sand A & B
P-1404 Filter Pumps
EA-1802 Cooling Tower
P-1802 CT Pump
P-1405 Tank Pumps
V-1503 Dust Suppression
Columbia Ridge Landfill
CO-1505 Discharge Conveyor
F-1405
F-1406
F-1407
F-1408
F-1409
F-1410
LFG Dewatering
Stage 2 Filtration
Landfill Gas Storage
Stage 1 Filtration
Building B-4
Landfill Waste Mass
Landfill Gas Compression
Propane Storage
Treated Waste
F-1411
F-1412
F-1413
F-1414
F-1415
F-1416
Condensate
Existing Baghouse
Pond
P-1406 Pond Pump
Treated Process Water Tanks (12)
All tanks 20k Gallons

APPENDIX C
SECONDARY CONTAINMENT CALCULATIONS

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25 Year, 25 Hour Storm Event *2.5 in*

Containment Area Number (see plan)	Area of Containment, A (sq ft)	Depth of Containment, d (ft)	Volume of Containment, Vc=A.d (cu ft)	Equipment Type	Units of Equipment (Includes Future)	Area of Equipment Pad (sq ft)	Volume of Equipment, Ve (cu ft)	Total Containment Volume Provided, Vc-Ve (cu ft)	Rainfall Volume, Vr (cu ft)	Tank Volume, Vt (cu ft)	Required Containment Volume, Vr+Vt (cu ft)	Notes
A	960	0.5	159.8	N/A	0	0	-	159.8	120.0	-	120.0	Volume = 1/3[Area x Depth]. Area provided to contain incidental minor spills only.
B1	6,078	2.33	14,180.8	20k Gal Tanks, Pads	24	172.2	7,895.5	6,285.2	759.7	1,673.6	2,433.3	Assume 6"-tall Equipment pad plus 12' dia. tank for remainder of containment wall height
B2	2,068	2.33	4,818.4	20k Gal Tanks, Pads	4	172.2	1,315.9	3,502.5	258.5	2,673.6	2,932.1	Assume 6"-tall Equipment pad plus 12' dia. tank for remainder of containment wall height
B3	2,200	2.33	5,125.9	20k Gal Tanks, Pads	4	172.2	1,973.9	3,152.0	275.0	2,673.6	2,948.6	Assume 6"-tall Equipment pad plus 12' dia. tank for remainder of containment wall height
C	8,529	0.67	5,683.5	20k Gal Tanks, Pads, Process Equipment	1	2378.4	1,582.2	4,101.3	1,065.7	2,673.6	3,739.3	Assume depth of Equipment/Pad is full height of containment wall
D	894	14.17	12,666.3	Mixing Hopper	1	203.6	2,885.0	9,781.3	46.4	972.0	1,018.4	Assume height of hopper is full height of containment wall. Use 371 sqft exterior to building for rainfall. Hopper volume of 36CY provided by Owner.

PRELIMINARY
NOT FOR CONSTRUCTION

APPENDIX D
TDU SYSTEM CAPACITY

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RLC Technologies TDU System Capacity 30.0 MMBTU/HR

MMBTU/HR Required

	Tons per Hour																			
% Water	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
0%	0.692	1.383	2.075	2.767	3.458	4.150	4.842	5.533	6.225	6.917	7.608	8.300	8.992	9.683	10.375	11.067	11.758	12.450	13.142	13.833
5%	0.898	1.796	2.694	3.591	4.489	5.387	6.285	7.183	8.081	8.979	9.877	10.774	11.672	12.570	13.468	14.366	15.264	16.162	17.060	17.957
10%	1.104	2.208	3.312	4.416	5.520	6.624	7.729	8.833	9.937	11.041	12.145	13.249	14.353	15.457	16.561	17.665				
15%	1.310	2.621	3.931	5.241	6.551	7.862	9.172	10.482	11.792	13.103	14.413	15.723	17.034							
20%	1.516	3.033	4.549	6.066	7.582	9.099	10.615	12.132	13.648	15.165	16.681									
25%	1.723	3.445	5.168	6.891	8.613	10.336	12.059	13.781	15.504	17.227										
30%	1.929	3.858	5.787	7.716	9.644	11.573	13.502	15.431	17.360											
35%	2.135	4.270	6.405	8.540	10.675	12.811	14.946	17.081												
40%	2.341	4.683	7.024	9.365	11.706	14.048	16.389													
45%	2.547	5.095	7.642	10.190	12.737	15.285	17.832													
50%	2.754	5.507	8.261	11.015	13.769	16.522														
55%	2.960	5.920	8.880	11.840	14.800	17.759														
60%	3.166	6.332	9.498	12.664	15.831															
65%	3.372	6.745	10.117	13.489	16.862															
70%	3.579	7.157	10.736	14.314	17.893															
75%	3.785	7.569	11.354	15.139																
80%	3.991	7.982	11.973	15.964																
85%	4.197	8.394	12.591	16.788																
90%	4.403	8.807	13.210	17.613																
95%	4.610	9.219	13.829																	
100%	4.816	9.631	14.447																	

**** MMBTU/HR required estimates above use 60% Thermal Transfer Efficiency and 900Deg F operating temperatures

Message

From: Knittel, Janette [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=A955F914E8D34CB19B6F63AC60707D32-KNITTEL, JANETTE]
Sent: 4/4/2017 10:33:11 PM
To: DUVAL Rich [rich.duval@state.or.us]
CC: Davies, Lynne [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=169eb6cbdebb4caf85f76390b8ab2674-LDavie12]; Valdez, Heather [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=eb323347294d44009a369c3576798bdf-Valdez, Heather]
Subject: RE: Air emission question for the ORU

Hi Rich. Could you help us out with answers to Heather's questions below?
Thanks,
Janette

From: Valdez, Heather
Sent: Wednesday, March 15, 2017 4:51 PM
To: Knittel, Janette <Knittel.Janette@epa.gov>; DUVAL Rich <rich.duval@state.or.us>
Cc: Davies, Lynne <Davies.Lynne@epa.gov>
Subject: RE: Air emission question for the ORU

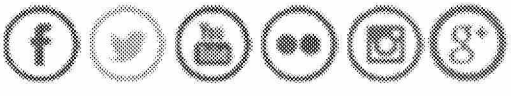
Thanks Janette.

Hi Rich, a couple of questions regarding the air permit you provided. Are you able to find a Statement of Basis for the air permit, or something that provides additional supporting details. I am not seeing what regulatory basis is called out for either the ORU or the thermal oxidizer requirements. I do not see what the basis is for the PM requirements for the ORU or for the monitoring requirements for the thermal oxidizer.

If there are air requirements that are applicable but they are not in this air permit provided, do you know, is there another way to verify how those are being implemented?

Thanks!

Heather Valdez
RCRA Project Manager, Chemical Engineer
RCRA Corrective Actions, Permits and PCBs Unit
Office of Air and Waste
EPA Region 10
1200 6th Ave, Suite 900, AWT-150, Seattle, WA 98101
(206) 553-6220
valdez.heather@epa.gov



From: Knittel, Janette
Sent: Wednesday, March 15, 2017 4:34 PM
To: DUVAL Rich <rich.duval@state.or.us>

Cc: Valdez, Heather <Valdez.Heather@epa.gov>; Davies, Lynne <Davies.Lynne@epa.gov>
Subject: RE: Air emission question for the ORU

Hi Rich,
Thanks for sending your question below re: air exemptions for the CWMNW ORU-2 permit mod. I know Heather and Lynne have been busy researching your issue and putting the pieces together. They have some follow-up questions for you from our conversation Monday and the air permit you sent us. I sent them the existing RCRA permit and Standalone 19. Do you want to send us any of your draft materials for this mod to help us understand this better?
Heather and Lynne, please feel free to respond to Rich with your questions (and cc: me please), or we could all talk again if you have many questions or they are very involved.
-Janette

From: DUVAL Rich [mailto:rich.duval@state.or.us]
Sent: Wednesday, March 15, 2017 4:09 PM
To: Knittel, Janette <Knittel.Janette@epa.gov>
Subject: Air emission question for the ORU

My question is about the scope of the exemptions contained in 40 CFR 264.1030(e), 40 CFR 264.1064(m), and 40 CFR 264.1080 (b)(7). These exemptions are clear when applied to facilities/equipment/units used to manage only wastes that are subject to a Clean Air Act requirement (in our case 40 CFR 61, subpart ff). My question is how this exemption applies to facilities/equipment/units that manage wastes that are subject to CAA and wastes that are not subject to CAA. Does the exemption extend to non-CAA wastes when the CAA required emission controls are utilized?

HEINONLINE

Citation: 56 Fed. Reg. 7204 1991

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is not promulgating an exemption from regulation of the hydrocarbon phase of the landfill gas condensate at this time. Facilities that wish to burn a landfill gas condensate may consider whether they are eligible for the small quantity burner exemption promulgated in this rule.

V. Definitions of Infrared and Plasma Arc Incinerators

Today's rule establishes definitions for infrared and plasma arc incinerators and revises the definition of incinerator to explicitly include these devices. As discussed in the April 27, 1990 proposed amendments to the incinerator standards (55 FR at 17869–70), EPA is clarifying that these devices are incinerators rather than (other) thermal treatment units subject to regulation under subpart X of part 264 (or subpart P of part 265 for interim status units) because: (1) although these devices use nonflame sources of thermal energy to treat waste in the primary chamber, they invariably employ controlled flame afterburners to combust hydrocarbons driven off by the primary process (and, thus, they meet the definition of an "incinerator" under § 260.10); and (2) the incinerator standards are workable and protective for these units.

We note that today's action merely clarifies the regulatory status of these devices. It does not subject them to regulation for the first time; they have been regulated since 1980. Thus, interim status is not reopened for these devices.

Part Five: Administrative, Economic, and Environmental Impacts, and List of Subjects

I. State Authority

A. Applicability of Rules in Authorized States

Under section 3006 of RCRA, EPA may authorize qualified States to administer and enforce the RCRA program within the State. (See 40 CFR part 271 for the standards and requirements for authorization.) Following authorization, EPA retains enforcement authority under sections 3008, 7003 and 3013 of RCRA, although authorized States have primary enforcement responsibility.

Prior to the Hazardous and Solid Waste Amendments of 1984 (HSWA), a State with final authorization administered its hazardous waste program entirely in lieu of EPA administering the Federal program in that State. The Federal requirements no longer applied in the authorized State, and EPA could not issue permits for any facilities in the State which the State was authorized to permit. When new, more stringent Federal requirements were promulgated or enacted, the State was obliged to enact equivalent authority within specified time frames. New Federal requirements did not take effect in an authorized State until the State adopted the requirements as State law.

In contrast, under section 3006(g) of RCRA, 42 U.S.C. 6926(g), new requirements and prohibitions imposed by HSWA take effect in authorized States at the same time that they take effect in nonauthorized States. EPA is directed to carry out those requirements and prohibitions in authorized States, including the issuance of permits, until the State is granted authorization to do so. While States must still adopt HSWA-related provisions as State law to achieve or retain final authorization, the HSWA applies in authorized States in the interim.

The majority of today's rule is promulgated pursuant to section 3004(q) of RCRA, a provision added by HSWA. (The provisions that are not promulgated pursuant to HSWA are the provisions for sludge dryers, carbon regeneration units, infrared incinerators, and plasma arc incinerators.) Therefore, the Agency is adding the requirements (except the non-HSWA provisions) to Table 1 in § 271.1(j) which identifies the Federal program requirements that are promulgated pursuant to HSWA and that take effect in all States, regardless of their authorization status. States may apply for either interim or final authorization for the HSWA provisions identified in Table 1, as discussed in the following section of this preamble.

B. Effect on State Authorizations

As noted above, EPA will implement the majority of the provisions of today's rule in authorized States until they modify their programs to adopt these rules and the modification is approved by EPA. Because these provisions of the rules are promulgated pursuant to HSWA, a State submitting a program modification may apply to receive either interim or final authorization under section 3006(g)(2) or 3006(b), respectively, for these provisions on the basis of requirements that are substantially equivalent or equivalent to EPA's. The procedures and schedule for State program modifications for either interim or final authorization are described in 40 CFR 271.21. It should be noted that all HSWA interim authorizations will expire January 1, 1993. (See § 271.24(c).)

The provisions of today's rule that are not promulgated pursuant to HSWA—provisions for sludge dryers, carbon regeneration units, infrared incinerators, and plasma are incinerators—are not effective in authorized States. Thus, these requirements will be applicable only in those States that do not have final authorization. In authorized States, the requirements will not be applicable until the State revises its program to adopt equivalent requirements under State law.

40 CFR 271.21(e)(2) requires that States that have final authorization must modify their programs to reflect Federal program changes, and must subsequently submit the modifications to EPA for approval. The deadline by which the State must modify its program to adopt the HSWA portion of today's rule is July 1, 1993 if a statutory change is not needed, or July 1, 1994 if a statutory change is needed. The deadline by which the State must modify its program to adopt the non-HSWA portion of today's rule is July 1, 1992 if a statutory change in not needed, or July 1, 1993 if a statutory change is needed. These deadlines can be extended in certain cases (40 CFR 271.21(e)(3)). Once EPA approves the modification, the State requirements become Subtitle C RCRA requirements.

States with authorized RCRA programs may already have requirements similar to those in today's rule. These State regulations have not been assessed against the Federal regulations being promulgated today to determine whether they meet the tests for authorization. Thus, a State is not authorized to implement these requirements in lieu of EPA until the State program modification is approved. Of course, States with existing standards may continue to administer and enforce their standards as a matter of State law.

In implementing the Federal program for the HSWA portion of today's rule, EPA will work with States under cooperative agreements to minimize duplication of efforts. In many cases, EPA will be able to defer to the States in their efforts to implement their programs, rather than take separate actions under Federal authority.

States that submit their official applications for final authorization less than 12 months after the effective date of these standards are not required to include standards equivalent to these standards in their application. However, the State must modify its program by the deadlines set forth in § 271.21(e). States that submit official applications for final authorization 12 months after the effective date of these standards must include standards equivalent to these standards in their application. 40 CFR 271.3 sets forth the requirements a State

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